ENGINEERING NEWS-RECORD

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You're looking at the dam from the cableway operator's control station. The track cable extends from the head tower 2420 feet across the river canyon to the tail tower (upper circle). The 8-yard bucket (lower circle) is loaded at a dock beneath the control station. G-E amplidyne control provides fast operation and flexibility, needs only minimum maintenance.

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G-E powered rig at Pine Flat Dam hoists and hauls at same time; has poured 4000 yards in single day!

At Pine Flat Dam on the Kings River near Fresno, California, the General Electric powered cableway—fastest in the world—is setting new pouring records to help build the world's ninth highest dam. A Corps of Engineers project, the dam is being built by Pine Flat Contractors Associated Companies.

The Pine Flat rig, built by Willamette Iron and Steel Co., is the first ever designed with G-E amplidyne control—for faster acceleration, greater precision, smoother operation. In addition, a new concept of power application permits hoisting and hauling at the same time. Automatic braking makes operation safer. Smoother acceleration lessens wear on cables and other equipment. And power losses during acceleration and deceleration are reduced.

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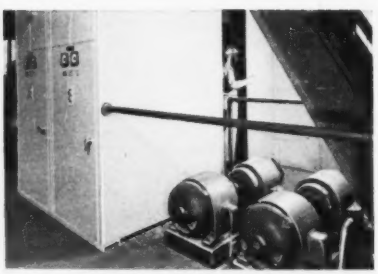
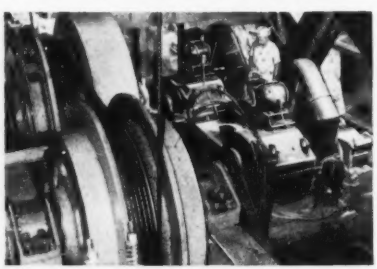


Key to rig's speed—G-E amplidynes in head tower for hoist and haul drives provide smooth adjustable voltage control by limiting current during acceleration.



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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 148 JANUARY 24, 1952 No. 4

WALDO G. BOWMAN
Editor

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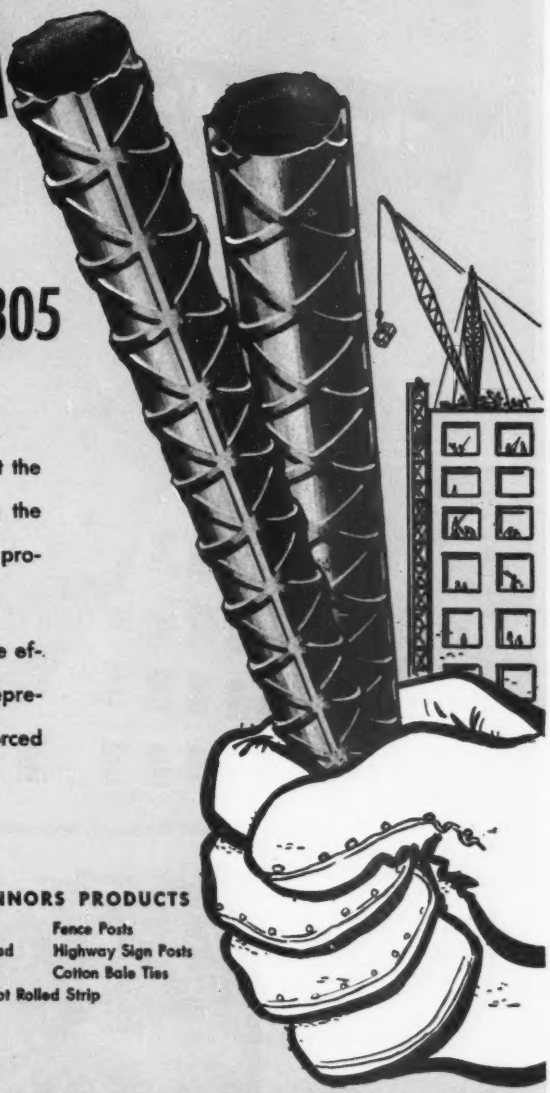

- We are pleased to announce that the new improved reinforcing bar meeting the ASTM A305 specification is now being produced at CONNORS.

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4	.668	.500	.20	1.571
5	1.043	.625	.31	1.963
6	1.502	.750	.44	2.356
7	2.044	.875	.60	2.749
8	2.670	1.000	.79	3.142
9	3.400	1.128	1.00	3.544
10	4.303	1.270	1.27	3.990
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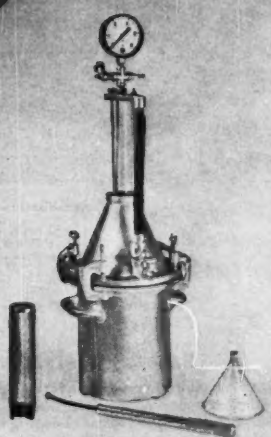

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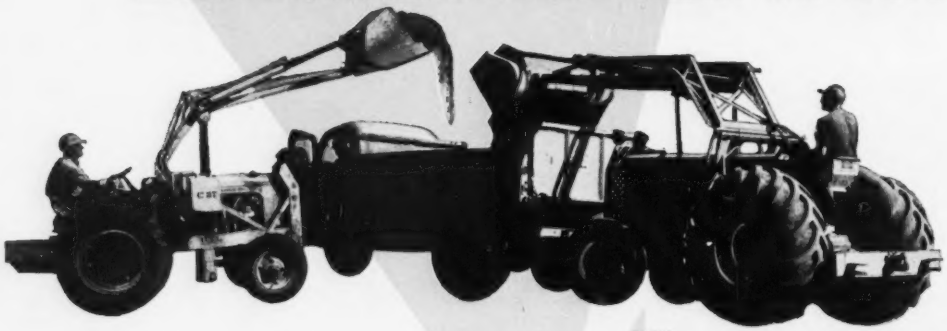

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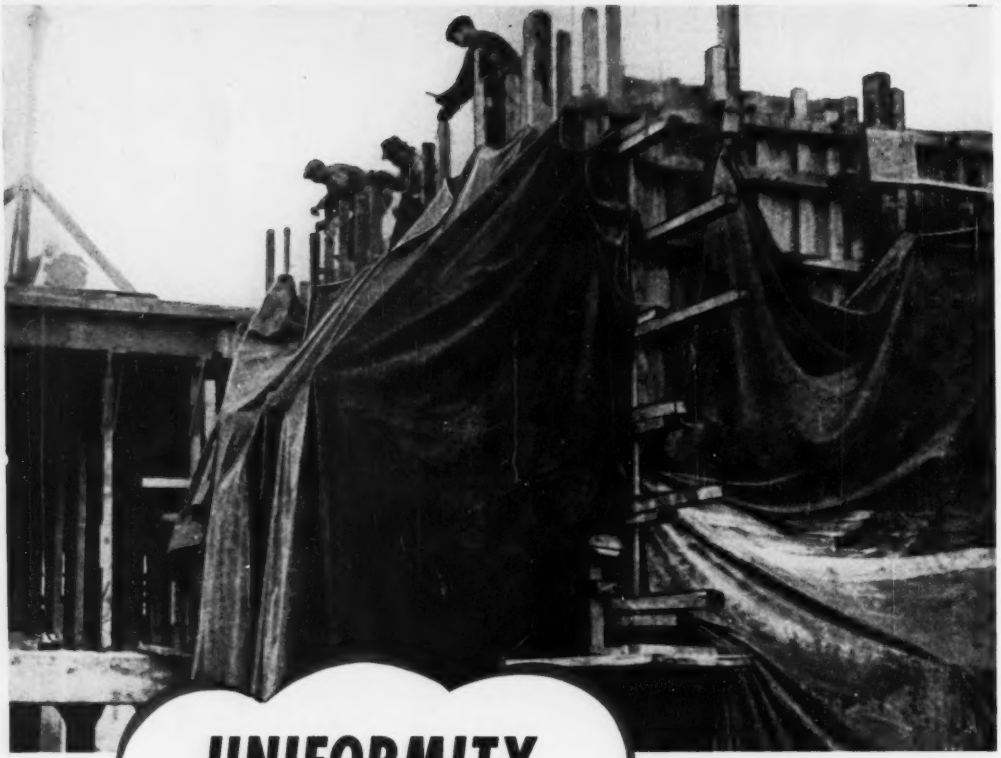

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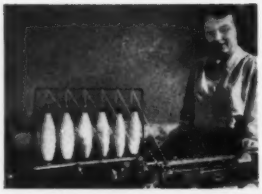

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READER COMMENT

Likes bricklayer article

Sir: I have just read with a great deal of interest "A Bricklayer Answers the Critics" by Harold A. Gadsden, featured in the November 29, 1951, issue of the Engineering News-Record.

The Veterans Administration, in connection with its hospital program concerns itself at all times with observance of the best construction practices and the resulting long range economics thus obtained.

Mr. Gadsden's comment will be of value to the Veterans Administration's superintendents of construction and engineer officers, who are primarily responsible for field supervision of VA construction work. Consequently, with your permission, I am planning to reprint his statement in an early issue of one of the bulletins we send to our staff at frequent intervals.

J. J. ROCKEFELLER
Director of Construction
Contracting Officer
Veterans Administration
Washington, D. C.

More manpower waste?

Sir: I have just seen your October 14, 1951 issue of ENR and became immediately interested in a reader's comment on the misuse of manpower, referring to the waste of professional training by the armed forces.

The battalion with which I am serving is a non-combat surveying outfit in the Far East Command. In a three-month period starting in July, 1951, this battalion received approximately 125 replacements comprised mainly of civil engineers and a few geologists. A number of these graduates had from one to three years' professional experience, while some of them were out of college for only a few months. To my knowledge less than 20 of these men were placed in jobs requiring even the least excuse for a trained engineer.

This is not an isolated incident. Since the draft was put in full swing in August and September of 1950 many college graduates representing various fields were called into the army. Personally, I have been in "special" outfits with technical men totaling as much as 200. Few of these men were assigned to jobs requiring technical graduates. Most of them were given some type of clerical or minor technical job which required a bare minimum of education or no education at all.

At the same time these 125 replace-

(*Continued on page 14*)

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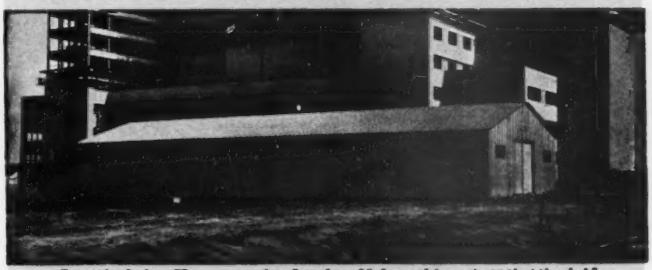
Adaptable to Customers' Needs . . . Automobile showroom and shop at Ames, Iowa, shows how Butler Buildings meet special requirements. Here sturdy Butler structurals and aluminum, insulated roof are combined with masonry sidewalls. Note large display windows.



Practical for You . . . At Omaha, Nebr., this 40'x120'x18' rigid frame Butler Building is used as contractor's warehouse. Butler Buildings also make permanent yet portable job site shelters, field offices.

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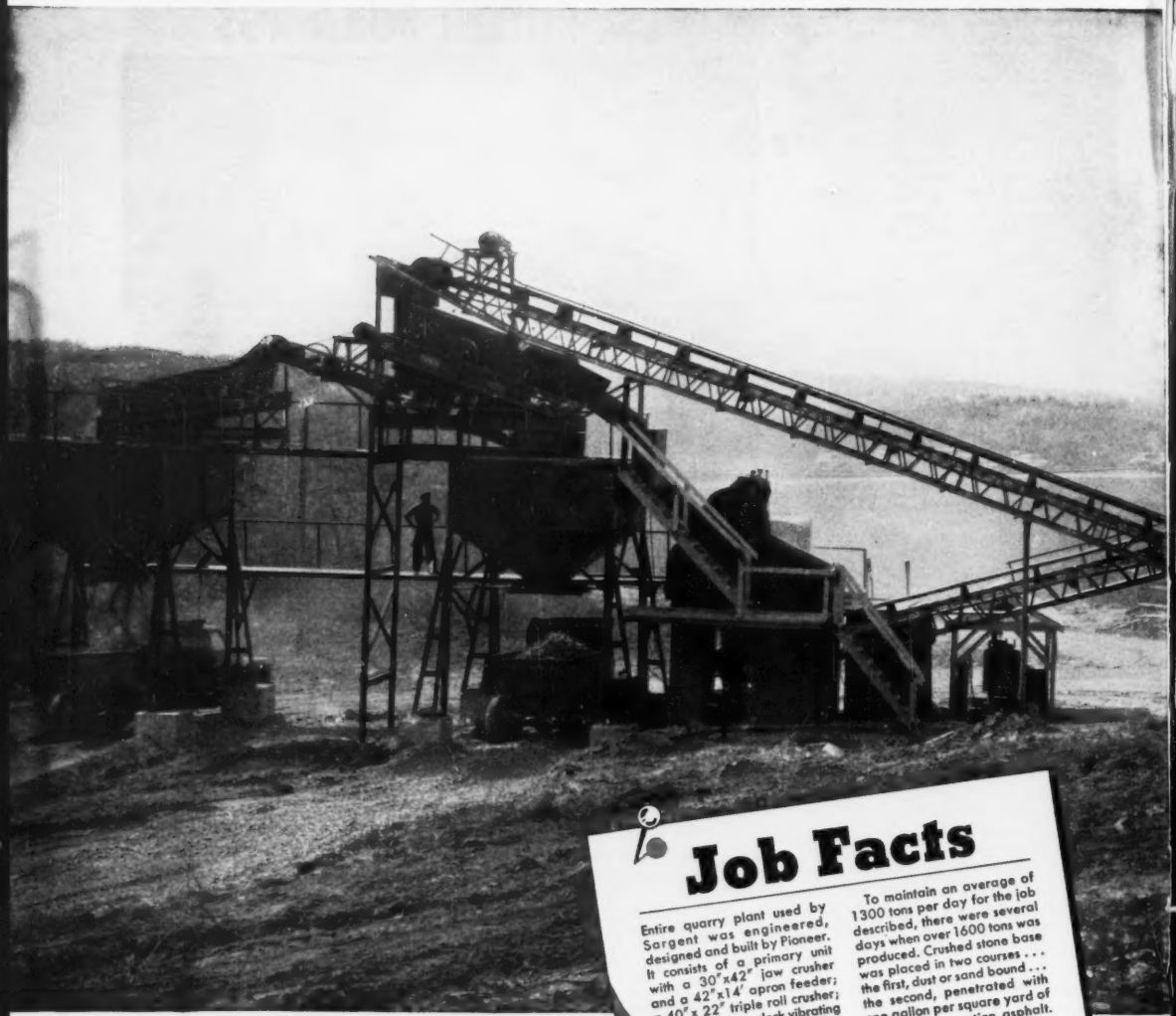

Job Facts

Entire quarry plant used by Sargent was engineered, designed and built by Pioneer. It consists of a primary unit with a 30"x42" jaw crusher and a 42"x14' apron feeder; a 40" x 22" triple roll crusher; a 4'x10' three deck vibrating screen; two 20 yard bins and 95' of conveyor.

To maintain an average of 1300 tons per day for the job described, there were several days when over 1600 tons was produced. Crushed stone base was placed in two courses . . . the first, dust or sand bound . . . the second, penetrated with one gallon per square yard of 85-100 penetration asphalt.

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Cleveland Electric Illuminating Co.

with TOURNADOZER

Several million tons of coal are delivered annually to the Cleveland Electric Illuminating Co. for use in generating electricity. Part of the tremendous task of stockpiling has been assigned to a LeTourneau rubber-tired C Tournadozer, recently purchased for coal handling and maintenance service at their Ashtabula, Ohio plant.

Tires reduce fire hazard

Tournadozer's flexible rubber tires, with pressures as low as 40 lbs., compact coal on travel back and forth over the 200' x 1500' stockpile. Combined with cushioned rolling action of over 15½ tons machine weight, coal is packed without breakage in an air-tight layer of considerable depth. This greatly lessens danger of fires caused by spontaneous combustion.

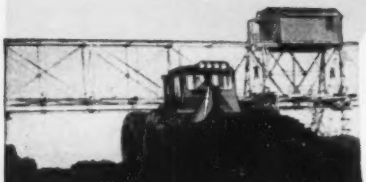
Twice as fast as crawler

Tournadozer "runs" at 19 m.p.h. instead of "crawling" at 5 to 8 m.p.h. Instant-shift Tournamatic transmission gives any one of 4 forward, 2 reverse speeds without stopping or losing vital pushing momentum for fast dozing cycles on the stockpile.

Crosses pavement, tracks

This high-speed mobility plus 186 h.p., 4-wheel drive on rubber makes Tournadozer an ideal tool for handling maintenance within Cleveland Electric Illuminating Co.'s plant network. Unit travels anywhere at a moment's notice . . . cross-country, over pavements, curbs, tracks . . . is always ready to work with no delay for transport or loading.

Whether you stockpile with Tournadozer or keep it busy leveling roads, grading dumps, clearing snow, building parking lots, etc., you'll be amazed at its ability to get more work done at less cost per man hour. This flexible equipment can be used on many tasks, eliminates loss on fixed-type equipment involved during idle periods. Your LeTourneau Distributor will be glad to give you all the facts . . . without obligation.



Fingertip electric control blade moves 2½-yd. loads 50' to 200', working in 2nd gear over grades to 10%. Speedy Tournadozer runs ½ mile in only a few minutes time to handle emergency pushing or pulling jobs around plant area.

R. G. LeTOURNEAU, INC.
Peoria, Illinois
Tournadozer, Tournamatic—Trademark Reg. U. S. Pat. Off. CH122

(Continued from page 11)

ments were being held for shipment to this battalion, Ft. Belvoir's Engineer Research and Development Laboratory was asking for 500 civilian engineers to work for salaries up to $6000 per year. While this shortage at ER&DL existed there were a minimum of 100 technical graduates at Belvoir awaiting assignment. There are a few isolated cases in which ER&DL made requests for special men by name and was refused. However, a number of technical graduates were assigned to ER&DL. The jobs to which most of these men were assigned were routine and barely taxed the capacity of the men. A number of these men requested assignment to this battalion in search of something better.

One day on Kitchen Police duty—not in this battalion—the pre-army salaries of ten engineers peeling potatoes totaled $45,000 a year. These men varied from recent graduates to a Doctor of Science. The above record is an appalling one. This country has the right to demand that a more efficient use of trained personnel be made by the armed forces. The result should be a tremendous saving in dollars.

PFC. (NAME WITHHELD)

Unrealistic stresses?

Sir: In the Dec. 13, 1951, issue, there appears a report of a proposed reinforced concrete bridge in India. There seems to be some corrections necessary in the information given. Is it true that with a 6,000-psi concrete mix, probably in accordance with foreign custom, of cube tests, that the maximum compressive stress in the prestressed concrete will be 1,500 psi? And what type of steel wire will permit a maximum (even before creep and shrinkage losses) of 1,400,000 psi?

The design load of 70 tons—designated as "AA" class loading, needs a little further explanation: What size tons and what size load? The article incidentally tells everything about the new bridge except the size of the carrying members.

In other words, the article was very entertaining, but not instructive or convincing. I hope that the policy of the ENGINEERING NEWS-RECORD in providing information rather than entertainment will not be changed.

JACOB FELD
Consulting Engineer
New York, N. Y.

EDITOR'S NOTE—No policy change contemplated. Typing error changed steel stress from 140,000 psi to 1,400,000.

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BOND YIELDS GOING UP—MAY FALL LATER IN YEAR

Money for construction will cost more in 1952. Average yields of new state and municipal bond issues will be well above their average last year.

The cost of money won't rise as abruptly as in 1951, when the average yield of 20 state and municipal bonds went from 1.66 per cent to 2.11 per cent. But yields are expected to go higher before they level off—and no substantial decline is yet in sight.

Two main forces are behind this outlook—huge demand for borrowed funds, and strict government credit policy.

Both industry and government will be borrowing much greater amounts of money than in 1951. (See last week's TREND.) The big demand for loans will put heavy upward pressure on interest rates.

Government credit policy is expected to favor higher interest rates, just as it did in 1951. The Federal Reserve touched off last year's rise in interest rates by refusing to support government bonds at par. When government bond prices fell, the rate of interest on them automatically became higher—and rates paid on state and municipal bonds followed suit. Rates on government bonds and other bonds and loans generally move in the same direction.

Rates on short-term business loans have gone way up. The rate for loans to prime business borrowers is now 3 per cent in New York, compared to 2¼ per cent last January. So far, long-term rates have not risen this much—they are still "out of line." So it pays for commercial banks to concentrate on short-term loans and reduce purchases of long-term state and municipal bonds.

This is important for construction—because commercial banks normally hold about one third of all outstanding privately held state and municipal bonds. And there is a good chance that short-term rates will rise again within the next few months. That would give short-term loans an even greater advantage over state and municipal bonds—unless bond yields rise.

• **Offsets**—Some favorable factors partly offset these pressures. One is exemption from Federal taxation. With the corporate tax rate now at 52 per cent—plus excess profits tax—and personal tax rates running as high as 92 per cent, tax exemption is more attractive than ever. If higher taxes bring more money into the market for tax-exempt securities, the rise in municipal bond yields will be dampened.

"Voluntary credit control" cuts sales of bonds for veterans' bonuses and other "non-essential" purposes. That also frees money for purchase of other tax-exempt securities.

• **Possible Relief**—Pressure on interest rates may ease off later in 1952. Demand for new loans will be down then. Corporate buying to pay taxes is concentrated between now and June, and borrowing to finance industrial expansion is expected to fall heaviest in the first half of the year. When demand from these sources drops, there may be more money for other types of loans.

The Federal Reserve Board may give more support to government bonds in late 1952. The government will be selling several billion dollars worth of bonds to cover a big second-half deficit—and it will be easier to sell them if other government bonds are closer to par than they are now. Better support would help lower the general level of interest charges.

Investors may also be getting more cautious by late 1952—beginning to worry about a possible business recession in 1953. Such caution usually leads to switching money from the stock market to bonds—which might push bond prices up and interest rates down.

But—on balance—the prospect is that money for state and municipal construction will cost more through most of 1952.

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EDITORIALS

A matter of organization

OPENING of the last nine miles of New Jersey's 118-mile toll turnpike provides an appropriate opportunity to reemphasize an aspect of that great undertaking that should not be forgotten. Completion of the job—involving construction totaling to $213,000,000—in less than two years' time was primarily a matter of organization. It was this organizational setup that made possible the rapid completion of a vast amount of engineering work within the first few weeks after the project was authorized, and permitted the fast purchase of right-of-way. It also allowed letting practically all the grading and bridge substructure contracts in time for a quick start in 1950. Without such organization, the highway could not have been opened after only two construction seasons.

It is important to note that "organization" did not mean setting up a large Turnpike engineering staff. Instead, outside consulting firms were used both to handle varying lengths of the road and to coordinate the whole activity. Only a small Turnpike Authority setup was required to exercise general direction.

Chief responsibility for this successful arrangement rests with Paul L. Troast, the New Jersey contractor who was picked by Governor Alfred E. Driscoll to head the Turnpike Authority. But Mr. Troast has always made a point of passing credit on to the two businessmen who served with him on the authority and to W. W. Wanamaker, executive director, Charles M. Noble, chief engineer, and the many engineers and contractors who were brought in to take charge of the many elements of the work. The Turnpike stands as a fine example of what organized construction can accomplish. Those who had a part in it may be proud, those who merely watched it may be able to apply its lessons elsewhere.

Missed opportunity

THE REPORT of the Corps of Engineers on development of additional power at Niagara Falls is disappointing. Here was a golden opportunity for the Corps "to assert its independence and its devotion to the cause of efficient government", as was urged on this page in the Nov. 29 issue. The opportunity was passed up, and the report recommends federal development of the power in what will be viewed either as subservience to administration wishes or just a routine move to provide another job for the Army Engineers.

Additional power at Niagara can be most rapidly developed by the private utility company that is already resident there, which has developed all of the present power, and is financially able to carry out the work without recourse to public funds. As has been pointed out before, none of the recognized federal activities of irrigation, navigation or flood control is present at Niagara. Power alone is involved. To plug for its development by the federal government is to say that private investment in hydro power in the United States is no longer to be allowed. Such a policy is in our opinion shortsighted and not in the public interest.

There are enough river development projects in which direct federal participation is necessary and desirable to make it good national business to leave to private initiative those that can be handled independently. It seems too bad that the Corps of Engineers did not embrace this principle in its Niagara report. Perhaps the opportunity has not been entirely missed. The Board of Engineers for Rivers and Harbors, in whose hands the report now resides, is still to be heard from.

Put a plan behind zoning

DESPITE GREAT PROGRESS in zoning as a means of guiding urban development, too much zoning is still done on a hit-or-miss basis in response to whims or political pressures. A basic fault seems to be that many zoning decisions are made without any master plan to which to relate them. And, as someone has said, to attempt zoning without a plan is like ordering a policeman to preserve the peace without any laws to guide or back him up.

Most zoning troubles stem from attempts to inject industries into residential areas or vice versa. And without a plan, inconsistent and short-sighted decisions are bound to result. For example, it is easy to rule any and all industry out of proximity to residential areas, when actually certain types of industry are no more objectionable than a school—and sometimes of as great value. An over-all plan would reveal the great benefits to transportation and utilities of having industry near, or even in, residential areas, and it would permit an orderly development that would frequently stabilize rather than upset property values.

The opposite facet of the picture is the recent trend to put new mass housing for low-income groups in or close to an industrial area that has depreciated in value for one reason or another. Such locations, often have serious handicaps as residential areas. If there are power stations nearby, for example, the tenants may be troubled with flyash, gas or smoke. Or they may be disturbed if the plants are noisy or operate on a 24-hr. basis. A solution here would be to interpose a buffer zone between housing and industry. But precedent would have to be established in a master plan.

The important point however—regardless of the character of the problem—is to have a plan and a philosophy of development to which zoning decisions can be related. Otherwise the present complications of urban living are bound to be compounded.

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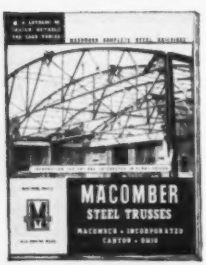

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THE CONSTRUCTION WEEK

H-BOMB MONEY—The federal government plans to spend nearly $335 million during the year starting July 1 to speed construction of the H-bomb plant in South Carolina, according to the Senate Appropriations subcommittee on Atomic Energy. This will bring the total construction appropriation to $1.25 billion—$895 million having been appropriated by Congress to date for building the huge atomic energy project. Privately it is said that even the $1.25 billion will not be enough money to complete it.

MATERIALS HOARDING CRACKDOWN—In one of its first such actions, NPA banned all CMP materials allotments to the American Steel & Iron Works of Denver, Colo., after company officials admitted obtaining 141 tons of steel over the regular allotment of 251 tons for the period Feb. 25-Sept. 30, 1951. No new allotments can be made to the company until April 15, under NPA's order.

WATER DIVERSION FIGHT LOOMS—Chicago spokesmen say that if the Supreme Court limit of 1,500 cfs it now takes from Lake Michigan through its drainage canal could be raised, costly erosion of lakeshore property by record-high lake levels could be reduced. Two Illinois congressmen introduced identical bills last week that would boost this limit by 2,000 cfs. Milwaukee and the Great Lakes Harbors Association are ready to fight the claim, saying such an increase would lower the lake level but ¾ in. in a year. Harbor spokesmen say the Sanitary District of Chicago is just looking for more hydro at its Lockport power house, more dilution to cut its sewage treatment cost.

FLOOD—DIGGING STAGE—This week Los Angeles was adding up the damage of its worst storm since 1938. Hillside areas and low-lying tracts in San Fernando Valley and between Los Angeles and Long Beach suffered the worst. The county estimates that altogether the storm will cost it $350,000 in structural repairs and clean-up. The city estimates that $1 million will be spent in cleaning up some 500,000 cu yd of debris. Structural damage to city bridges, streets, storm drains, etc., amounted to an estimated $250,000. No major structures were seriously damaged.

Contracts by type of work

	This Week	Cumulative 4 wks— 1952	1951	% chge
Waterworks.	$5.9	$14.5	$12.5	+96
Sewerage ...	1.9	13.1	29.2	−35
Bridges	4.1	13.9	27.7	−50
Highways ...	13.9	94.1	59.2	+59
Earthwork, Waterways.	1.7	22.4	14.7	+52
Buildings:				
Public	12.9	118.1	329.8	−64
Housg., pub.	16.8	59.5	83.4	+29
Housg., priv.	98.6	213.0	170.8	+25
Commercial	2.5	27.8	81.0	−66
Industrial	94.3	288.1	378.7	−24
Unclassified	56.7	123.8	79.9	+55
Total	**$309.3**	**$998.3**	**$1,266.9**	**−21**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100	1913	1926	1949
Constr. Cost. Jan. '52	547.83	263.34	114.84
Bldg. Cost... Jan. '52	405.62	219.26	115.20
Volume .... Dec. '51	404	164	117

IN THIS ISSUE—President Truman's proposed budget contains plenty of money for construction (p. 23) . . . . Protests from the construction industry have brought some changes in tactics from the National Production Authority (p. 26) . . . . . There were important new developments in construction plans for hydroelectric projects last week (p. 28) . . . . . A cofferdam collapsed on an important Florida bridge job (p. 29) . . . . . Designing plywood panels for buildings is discussed (p. 30) . . . . . Precast concrete sandwich walls drop costs on building exterior (p. 34) . . . . . How building delays were cut on a Texas skyscraper (p. 40) . . . . . St. Louis has an interesting new freight terminal (p. 43) . . . . . Timber trusses answer bridge problem on forest road (p. 44) . . . . . Progress of the Pan-American highway is surveyed (p. 46) . . . . . Chicago's new master plan includes huge construction projects (p. 50) . . . . . Money market for public housing looks encouraging (p. 72) . . . . . Backlog of school construction piling up fast (p. 78)

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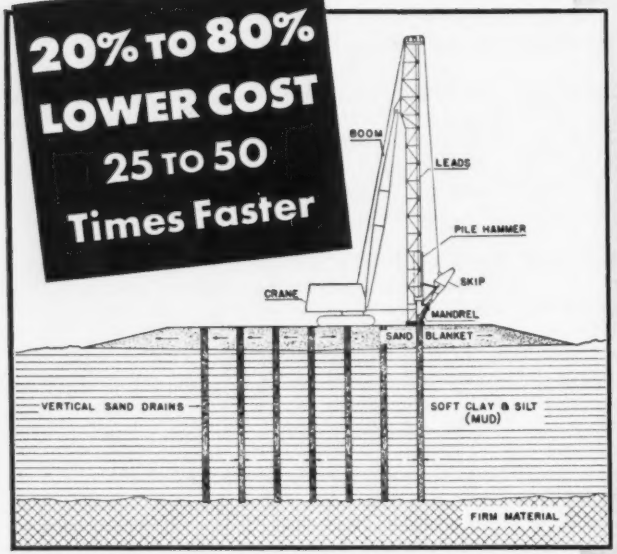

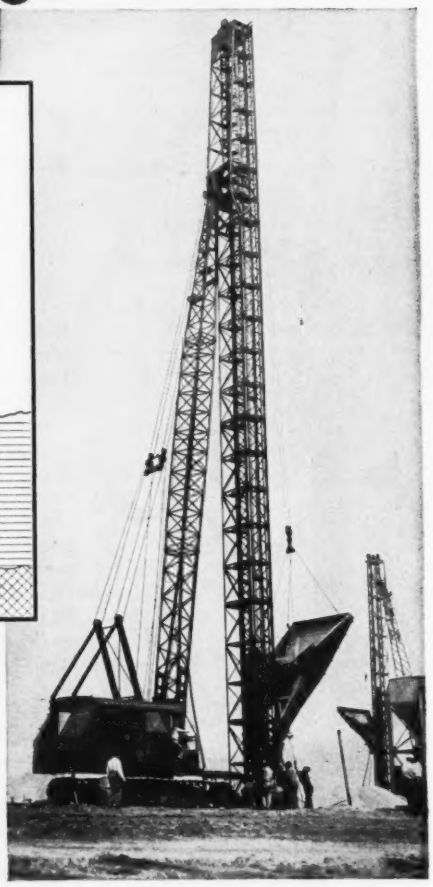

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IN HIS NEW BUDGET, the President asks a 13% hike in building money.

Truman seeks huge boost in funds for construction

By Vincent B. Smith
Associate Editor

Construction spending by the federal government will hit the high total of $7.7 billion in the fiscal year starting next July 1, according to the budget President Truman submitted to Congress this week.

The projected level of expenditure is nearly 13% above the estimated total for the current year and is 2¼ times the actual cash outlay for construction in the twelve months that ended last June 30.

You have to go back to the World War II year of 1942-'43 to find a higher rate of federal spending for construction. Not since then has Washington invested money in construction at the rate scheduled for fiscal 1953.

At $7.7 billion, the budgeted construction expenditure accounts for 9% of the overall government outlay of $85.4 billion forecast for fiscal '53. Included in the construction figure of $7.7 billion are $3.75 billion for civil public works and $3.5 billion for military construction. Expenditures for international and semi-public works and for direct defense projects outside the armed services make up the remainder of the construction budget.

It is a foregone conclusion that construction spending will reach the level projected for fiscal 1953. Congress already has appropriated nearly all money needed for military construction.

And in the civil public works category, $3.2 billion—or 85% of the money required—is to continue construction on going projects or programs. Less than $600 million of the civil works money requested would be used to start new projects and undertake new commitments in fiscal 1953.

• **Future bright**—Beyond fiscal 1953, the budget gives some hints as to future trends of government construction expenditures. They will change sharply only in event of an all-out mobilization. If the defense buildup proceeds at the pace now planned, military construction money so far appropriated will be used up by the end of fiscal '53. But the President proposes to ask this year for $2.5 billion more, which will carry the military construction program into fiscal '54 and beyond.

Atomic construction is another category now definitely slated to continue at a high level for several years. The biggest news regarding the budget came not in the President's message but in his statement to the press that an approved program for $5 billion to $6 billion of fissionable materials, atomic weapons, and plant expansion would be acted upon at this session of Congress. Cash authorizations to take care of this big construction program—or at least the first part of it—will be asked this year.

Decision on the atomic expansion plan apparently came too late to include it in the budget message. Estimating five years to complete the new program, Truman minimized its impact on atomic construction expenditures for fiscal 1953. The effect that year may be greater than he was ready to admit. After putting nearly $1.1 billion into new plant during the current fiscal period, AEC construction spending was scheduled to recede to less than $1 billion in fiscal '53. But the added program will more likely raise the rate of spending to a new peak and maintain it at a high level for two or three years.

• **More good news**—Other civil works programs give substance to the outlook for a continued high rate of construction investment after fiscal 1953. Projects and programs now being constructed by the federal government itself will require nearly $6 billion to complete in the period following June 30, 1953.

These are all essential works that Congress will continue to support. In addition, the loan and grant authorizations already voted by Congress assure more than $2 billion of federal funds for public housing and highways after fiscal 1953.

Additional money for federal highway aid in fiscal years 1954 and 1955 will be voted at the present session. Truman said in his budget message that $400 million a year probably would be enough to pay the federal share, but Congress is more likely to authorize at least $1 billion for the two years. Anything less would mean a cut in the present level of federal aid for highways.

New construction projects and commitments with a total estimated cost of $2.5 billion are recommended in the budget message. The largest of these—and the most doubtful—are the $567-million St. Lawrence development and the $357-million Hells Canyon project.

(Continued on next page)

Only $8.5 million would be expended on these two projects in fiscal 1953. For the entire list of new undertakings, the 1953 expenditures would total less than $600 million, leaving nearly $2 billion to complete work in later fiscal years. Even without the St. Lawrence and Hells Canyon projects, more than $1 billion of later expenditures would be required.

Including authorizations that can be definitely predicted for the present session of Congress—military, atomic energy and other defense construction, plus highway aid—the federal government will be committed to the expenditure of some $18 billion for continuing work on going programs after fiscal 1953.

• **Big backlog**—In addition to this assured total for the future, the government has a $16-billion backlog of authorized construction work which can get under way as materials and money are made available after fiscal 1953.

Included in this backlog are Corps of Engineers projects to a value of $6 billion; Bureau of Reclamation, $2.8 billion, and Tennessee Valley Authority, $1.1 billion. The Army Engineers now have detailed plans ready for starting construction on some $2 billion of these future projects, and Reclamation is preparing final plans for $260 million of its backlog work. TVA has $236 million of plans prepared, with the remainder now in process.

Because of the restrictions on starting new construction during the last year, federal agencies generally have been able to increase the reserve of project for which detailed plans are prepared or in progress, in addition states, local authorities and cooperatives that receive federal grants and loans have plans completed for $3 billion of projects; with another $4 billion in preparation.

Truman cited the flood control program as an example of the slow-down in new starts since the Korean action began at the end of June, 1950. Two years ago the budget included 122 general flood-control projects. After the attack on Korea, the number was cut to 102. In this week's budget for 1953, the President recommended funds for 64 general flood control projects, 60 of which are already under construction. A similar reduction has taken place in the reclamation program, he pointed out.

• **New starts**—Power and flood control keynote the few recommendations for new river development projects in the 1953 budget. Only eight new starts are proposed. Four of them would add generating capacity in power-short areas; the other four would help protect the recently devastated Kansas-Missouri valleys.

Biggest of the power projects that the President wants to start in fiscal '53 are the St. Lawrence, with 1.1 million kw on the U. S. side and Hells Canyon, with a capacity of 900,000 kw. Neither of these two has been authorized.

Truman urges authorization of both and a small amount of money to start construction. Fo, a third large power development, with a potential of some 1.25 million kw on the U.S. side of the Niagara River, he asks $1 million of additional planning funds and legislation to permit construction, **but no** money to begin work.

Other projects recommended for starting in fiscal '53 have already been authorized. Two with large power potentials are Ice Harbor Lock and Dam on the Snake River, 260,000 kw, and Hartwell Reservoir on the Savannah River in South Carolina, 177,300 kw. The new projects in the area of last summer's great flood are the Tuttle Creek and Glen Elder Dams, both in Kansas, and protective works at Topeka, Kan. and Cape Girardeau, Mo.

A big addition to the generating capacity of the Tennessee Valley Authority power system also is recommended, largely to take care of increasing requirements of atomic energy plants. Eleven additional generating units are included in the budget. Eight of them are steam units with a total capacity of 1.26 million kw, four for the Shawnee station and two each for Colbert and Kingston. Three hydro units with a total capacity of 82,000 kw are requested, the largest to be added to the power house at Hiwassee Dam and the two smaller ones to initiate power generation at upstream dams, Nottely and Chatuga.

• **Huge boost**—In all, the new starts and additions proposed for fiscal 1953 would increase the ultimate capacity of scheduled federal power generation by 3.5 million kw. Present capacity installed by federal power agencies amounts to 8.3 million kw, or 11.5% of total U.S. capacity. With the increase recommended in the 1953 budget, the scheduled ultimate capacity would go up to 22.1 million kw.

Estimated public works expenditures by the various federal agencies for fiscal 1953 are shown in the accompanying tables. In addition the budget proposes $325 million of construction expenditures for semi-public works and for international projects.

Most of this money would be in loans to Rural Electrification Cooperatives ($215 million), grants for nonpublic hospital construction (nearly $65 million), and loans to educational institutions ($32 million).

As shown by Table 1, the annual expenditure for civil public works continues to increase despite the suspension or curtailment of many projects. The larger outgo is the result of increases in public works related to the defense effort—atomic energy expansion, power projects or multipurpose projects with power features, defense housing, schools and civil defense. These increases outweigh the reductions in other civil works programs.

As an example, the Army Engineers

TABLE 1—EXPENDITURES FOR CIVIL PUBLIC WORKS

(Fiscal Years—In Millions)

Agency	Expenditures 1951 Actual	1952 Estimate	1953 Estimate
Atomic Energy Commission	$478.9	$1,070.5	$949.7
Corps of Engineers	514.5	519.4	572.9
Bureau of Public Roads	417.8	440.5	445.9
Bureau of Reclamation	261.0	238.6	227.1
Tennessee Valley Authority	120.6	228.2	248.1
Housing and Home Finance Agency	229.9	....	....
Loans	....	370.2	266.9
Defense housing and community facilities	....	19.4	273.1
Federal Security Agency	69.4	220.8	263.0
Veterans Administration	145.8	209.9	104.9
Bonneville Power Administration	32.8	50.0	52.5
State Department	16.1	54.0	47.8
Federal Civil Defense Administration	....	.6	52.4
Civil Aeronautics Administration	55.5	60.5	46.7
General Services Administration	42.2	32.5	23.5
Other	120.5	155.5	177.0
Total, Civil Public Works	$2,505.0	$3,670.6	$3,751.5

are budgeted to spend $258 million for river and harbor work in fiscal 1953, an increase of $52 million over 1952. But when you separate this work into two classes, you find that multi-purpose projects are scheduled to increase by nearly $70 million while strictly navigation projects decline by about $18 million. General flood control construction, which includes a good share of multi-purpose projects, continues at about the same level as in 1951 and the current year, with $341 million estimated for fiscal '53.

• **New lock**—Under the rivers and harbors category, one new start—actually a rehabilitation project—is recommended for 1953. This project is to replace an obsolete lock at Keokuk, Iowa, now in imminent danger of collapse. The 1953 budget request for this work is $2.5 million.

To carry on rivers and harbors construction in 1953, an appropriation of $208.7 million is requested. Of the requested amount, 88% will be applied to ten projects. The three largest allotments are for Columbia River projects: McNary Dam, $66 million; The Dalles, $37.5 million and Chief Joseph, $35.3 million.

For flood control construction in 1953, the budget asks an appropriation of $287.3 million. If granted this sum, the Army engineers will apply 73% of it to 17 projects, with the biggest amounts going to Fort Randall Reservoir, $37.5 million; Garrison, $34 million; Folsom, $18.1 million; Lookout Point, $17.3 million; and Tuttle Creek, $15.5 million. Estimated total cost of Tuttle Creek, a new project for 1953, is $79.1 million.

• **Slight drop**—Bureau of Reclamation construction expenditures for 1953 show a small decline from the current year. The bureau's program for 1953 calls for continuing work on 55 projects, 19 of them in the Missouri Basin, and starting Glen Elder.

A construction appropriation of $192 million is requested. Most of it would be used for these projects: Central Valley, $40 million; Columbia Basin, $21 million; Colorado-Big Thompson, $19 million; Eklutna, in Alaska, and Hungry Horse, about $13 million each; and Palisades, $10 million. With Glen Elder, the projects in the Missouri Basin, would take nearly $55 million.

TVA's annual construction expenditures have been increasing with the growth of the power program. Nearly all of the scheduled TVA spending in 1953—$244 million—is for power.

Substantial portions of the Army Engineer and Reclamation expenditures—$294 million and $124 million respectively—are for power projects or projects with power features. Including work on the Rio Grande and on transmission lines of the Bonneville, Southwestern and Southwestern power administrations, the 1953 budget proposes in all $734 million of construction related to power.

• **Delay seen**—Steel shortages have added to delays of the highway program. Authorized federal aid apportioned to the states is $500 million a year, but total estimated federal expenditures for 1953 are only $446 million, including the full cost of work on access roads and 525 miles of forest roads. The budget recommends future annual authorizations of $400 million for federal aid and $17.5 million for forest highways, plus an increase of $12 million in the $26.5 million now available for access roads.

Federal expenditures for defense housing and community facilities are expected to jump to $273 million in fiscal '53. Congress, at the last session, authorized $50 million for government housing and $60 million for facilities. To meet the estimated needs in 1953, Truman recommends that these authorizations be increased by $300 million for housing and $25 million for facilities.

Aid to school construction will require $170 million of federal funds in 1953, and hospital grants will take more than $125 million. The budget message asks Congress to approve $225 million of new authority for schools, and $75 million of new obligations for hospital construction.

A start is proposed for fiscal 1953 on civil defense construction, with an estimated $50 million of federal matching funds to be supplied to states and communities for modification of existing structures and the building of single-purpose shelters.

• **Housing funds**—Gross loans to local public housing authorities for short-term construction financing of their projects are estimated at less than $270 million in 1953, a drop of $100 million below the current year. Congress last year restricted this program to 50,000 dwelling units for fiscal 1952, and the President recommends 75,000 for 1953. There is strong opposition to the program, but it may climb toward its authorized level of 135,000 units per year when materials become more plentiful.

Expenditures for veterans hospitals will show a decline in 1953 to less than $105 million. This program is moving into its final stages. All but three of the 75 hospitals in the program will be under contract by early 1953.

Nearly all other civil works programs of the federal government give promise of maintaining or increasing their expenditures rates after 1953.

TABLE 2—ESTIMATED EXPENDITURES FOR DEFENSE CONSTRUCTION

(Not included in civil public works—Fiscal years—In millions)
(Nonconstruction costs excluded; includes proposed legislation)

Agency and Program	1951 Actual	1952 Estimate	1953 Estimate
Department of Defense, Military Functions			
Acquisition and construction of real property	$400	$2,700	$3,500
Military construction, Army Civilian components	....	5	30
Construction, Alaska communications system (1)	....	1	3
Construction, water supply facilities, San Diego, Calif.	....	3	13
General Services Administration:			
National industrial reserve (2)	5	15	6
Strategic and critical materials, storage facilities (2)	8	30	24
National Advisory Committee for Aeronautics:			
Construction and equipment	17	15	10
Construction and equipment, unitary plan (1)	....	5	15
Reconstruction Finance Corporation, synthetic rubber facilities (2)	11	31	20
Total Defense Construction	**$441**	**$2,805**	**$3,621**

(1) Less than $0.5 million
(2) Includes only that part of the authorization used for construction.

NEW YORKERS PROTEST—Announcement of second-quarter allotments for construction by the Defense Production Administration last week brought representatives of New York's building trades to Washington last week in a hurry. Conferring with mobilization officials are: Left to right (Seated)—Senator Irving M. Ives, Senator Herbert H. Lehman, Rep. Franklin D. Roosevelt, Jr. (Standing)—John Tracy, AFL Steamfitters Local; Charles W. Hanson, president N. Y. Council of Carpenters, AFL; Peter W. Eller, chairman of the board, N. Y. Building Trades Employers Assn.; Henry H. Fowler, administrator, National Production Authority; Howard McSpedon, president, N. Y. Building and Construction Trades Council, AFL; Rep. Emanuel Celler; Rep. Eugene J. Keogh; Rep. Jacob K. Javits. Not in photo was John F. Hennessy of Syska & Hennessy, mechanical engineers.

NPA adopts new tactics to handle special problems in construction

As announcement of construction cutbacks in the second quarter brought a storm of protest about their heads last week, National Production Authority officials quickly announced some basic policy changes.

At a Washington meeting with New York construction leaders, Henry H. Fowler, New NPA administrator told of plans to encourage a revival of building in areas hardest hit by unemployment in the building trades. They are:

1. NPA will soon define certain types of construction as more essential and will get a separate materials allocation of limited amount to be used for projects in this new category, especially in areas where unemployment in the building trades is serious. Fowler mentioned churches, fire houses and police stations as examples of structures that may get the higher essential rating.

2. NPA now invites applications for new commercial projects to be submitted in the next three months. The agency will decide which of these applications should be given a contingent permit to proceed as soon as materials become available. Projects will be selected for priority on a basis of: (a) those that have a high degree of essentiality, and (b) those that are located in areas threatened by severe construction unemployment.

By granting contingent approval to these applications, NPA hopes to build up a block of priority projects that will be in engineering readiness to go ahead as soon as a materials allotment can be made. The projects with prior approval will get the materials. Granting of advance approval is counted upon to encourage investors and owners to start architectural and engineering plans and thus take care of the long time lag—from inception of a project to start of construction—that has been worrying design and building firms.

3. NPA has adopted as a principle and policy that materials allotments made to any project in any quarter will be continued through succeeding quarters until the project is completed. In other words, allotments will be made on a project basis rather than on a quarterly-use basis. This assurance had been given in general terms to the Construction Industry Advisory Committee of NPA one week earlier (ENR Jan. 17, p. 25).

4. NPA expects soon to issue an amendment of the construction regulation that will permit use of foreign and salvaged steel in projects that don't require large quantities of copper or other scarce materials. The agency would approve projects that meet the qualifications.

No general relaxation of building controls is possible at present, Fowler said. NPA is administering the controls in accordance with the Defense Production Act, he said, and the law makes no specific provision for distributing the civilian share of materials in a way that will help areas suffering from unemployment. Sen. Herbert H. Lehman, Sen. Irving M. Ives and Rep. Franklin D. Roosevelt Jr. made it clear that they feel the act should be amended in that respect when it comes up for extension at the present session. Other congressmen present assented to that opinion.

Fowler did not cover all proposals that New York builders have been urging to correct the severe building depression in the New York area. He had nothing to say about the suggestion that a regional construction director be appointed to select projects and allot materials in the metropolitan area. The present construction controls system allows no opening for regional coordinators with authority to allocate materials.

• **Coordinator?**—But on the question—raised by congressmen and New York builders at the meeting—as to appointment of a top-level construction coordinator in the Defense Production Administration, Fowler had a direct answer.

Both he and DPA Administrator Manly Fleischmann want such a man. If the Construction Industry Advisory Committee will submit the names of men who would be willing to serve, a construction coordinator will be promptly appointed, Fowler said. So far, the difficulty has been in finding candidates who would agree to leave their businesses and give full time to the job.

NPA now plans to make an early claim for materials to go into commercial construction in urban areas where there is no alternate defense construction, Fowler told the meeting. Those materials will be made available as rapidly as the present industrial construction approaches completion. As program allotments for the second quarter have already been determined, the first trickle of added materials presumably could not be diverted to non-defense areas until third quarter.

• **AGC reaction**—In Lincoln, Nebraska, President-elect Arthur S. Horner of the Associated General Contractors, told a meeting of the Nebraska chapter, "there is something wrong with the arithmetic used by the NPA in their estimates of the steel supply in America."

He said the AGC is hoping NPA will "take a more realistic approach to the construction material situation."

Railroad to relocate huge switching yards

A $14-million relocation project which will move the huge switch yards of the Nashville, Chattanooga and St. Louis railway from the heart of Nashville into one of the city's finest residential areas was approved Jan. 10 by the county board of zoning appeals.

The board's ruling came after drawn out hearing at which residents of the affected area protested bitterly against the project. Homes in the vicinity are in the $25,000-$150,000 class.

Officials of the railroad and its parent line—the L&N—testified that the project was essential to the defense effort, vital to the economic growth of the region, and necessary for the commercial expansion of Nashville's business district.

The switchyard is now located in a deep gulch that divides the downtown business area. With removal of the tracks, the gulch will be transformed into a shopping and business area.

W. S. Hackworth, NC&St.L president, said the new facilities will include a 56-track classification area, with a receiving yard at one end and a departure yard at the other, a refrigeration plant, maintenance shops and stock pens. Construction is expected to begin late in March and will take about two years.

In approving the project, the zoning board did not reclassify the residential district. It granted the railroad a zoning exception applicable only to the new facility. Future industrial developments in the area are barred.

Attorneys for the protesting homeowners say they will appeal to the courts. Decisions of the zoning board are subject to review only if evidence shows that the board did not act in good faith and in the best interest of the community.

• **New rail line**—In Wyoming the Union Pacific Railroad has just started building a new 42-mile line between Cheyenne and Dale Creek at a cost of $16 million. Morrison-Knudsen Construction Co. has been awarded the contract for grading. The railroad will construct the track and install signal and communication lines.

Engineers wanted!

E. I. du Pont de Nemours & Co., contractors for the H-bomb plant near Augusta, Ga., has sent out representatives to all major cities in the Southeast to contact engineers qualified to fill immediate and crucial employment needs.

Steel requests get expert sifting

Defense Production Administration's new construction analysis staff (ENR Dec. 6, p. 23) has made a good start on its two-part job. As their primary and major objective, the six staff members are educating claimant agencies and NPA industry divisions on how to analyze structural steel requests for construction projects. At the same time, the structural experts are scrutinizing the requirements figures—particularly for the bigger jobs—to see that quarterly requests fit the realities of construction scheduling.

Appointment of the analysis group came too late to have much effect on total stated requirements against which second quarter program allocations were made early in January. But the staff's work will show up in structural allotments to some projects for the second quarter. And overall effects will spread through the full list of structural requirements by the time third quarter figures are added up in early April.

Education has been a two-day job for the new staff, headed by James B. Steep, Detroit consulting engineer. Recruited from steel companies and construction firms, all members of the group have had long experience with the scheduling of structurals for construction projects. On joining DPA, they had to learn the inside operations of the claimant agencies and industry divisions that handle CMP-4C applications for construction jobs.

• **Organization**—There are twenty agencies and divisions responsible for construction programs. Five of them account for the bulk of structural steel going into construction. These five also include most of the big projects where major reductions can be effected by rescheduling structural requirements.

The analysis staff is giving special attention to the heavy construction programs that offer best chance for savings—such as industrial expansion, military construction, and petroleum projects. First inspection showed electric power scheduling to be in pretty good shape. Highway projects present some opportunity for adjustment of individual job schedules, but less chance for overall structural savings.

On other programs, such as schools and hospitals, both total tonnages and average job requirements are smaller. For all programs, however, the analysis staff is educating the requirements and allocations officials in the various agencies and divisions to detect questionable quarterly requests, go back to the applicants for more data, and reschedule structural deliveries into later quarters wherever the facts of the case call for a more realistic schedule.

James B. Steep heads analysts.

• **Timing**—Basic to this educational process is a knowledge of the lead time, or time lag, between various stages of a construction project, from the dates when plans and working drawings are started until the job is ready for steel erection.

As a sample of the necessary timing of a construction job, the staff members hand agency officials a representative—or average—schedule for a project of fair size, showing the time required for planning, detailing, starting the work, building foundations, and ordering, rolling and fabricating the structural steel. This kind of instruction gives the agency people who screen CMP-4C applications a better grasp of the realities in construction project scheduling.

The analysis staff has the authority to require agencies to submit CMP project applications for review. It has not been necessary to use that authority. The agencies cooperate when called upon, most of them gladly. Specialized assistance of the staff is welcome in nearly all places.

• **Results**—On projects which the staff examiners, it can make recommendations to the responsible claimant agency or division and to the DPA Requirements Committee. Where judgments differ, the final decision rests with the committee.

What the staff members hope to do is educate the agencies and divisions in the next four or five months to a point where the analysts can go back to their home offices. Considering the turnover in mobilization agencies, it appears doubtful that it can complete its task so soon.

NEWS BRIEFS

• **Highway activities**—A bill which authorizes construction of an extension of the Pennsylvania Turnpike from a point east of the Susquehanna River to the Maryland line whenever the State Turnpike Commission considers it feasible, was signed last week. . . . The new Denver-Boulder, Colo. turnpike was officially opened to traffic last week (ENR Dec. 6, 1951, p. 36). . . . Controversy broke out in the Colorado legislature over conversion of Moffat Tunnel to use by automobiles and trucks as well as railroad traffic. It would slash approximately 28 miles from the present highway mileage from Denver to the west approach of Berthoud Pass, and cut 4,000 ft from the altitude vehicles must now climb. Feasibility of ventilating the six-mile bore was questioned. . . . Engineering contractors for the Baltimore (Md.) beltway which would encircle the city from the expressway on the south to the Pulaski highway on the northeast, have been signed and work begins this week. . . . The Ohio Program Commission has authorized its new Highway Investigating Committee to consider reports made by the Highway Study Committee during the last year, reopening questions on the proposed $5-billion 20-year road-building plan.

• **School needs**—According to a Jan. 12 estimate which was made by the Mississippi Department of Education, that state will need to spend more than $144 million to bring all of its school building and transportation facilities up to fully adequate standards. . . In Texas, J. R. Humphrey, building expert of the state education agency, says Texas public schools need more than $471 million worth of new building to be ready by next September. . . . California's State Department of Education is going to ask for at least $200 million in additional state money for construction of schools. . . . Georgia's Supreme Court has upheld the constitutionality of the State School Building Authority, which is expected to play a major role in efforts to meet the state's school construction needs estimated at $170 million.

• **No loss**—Swinerton & Walberg Construction Co. did not lose $500,000 on the California capital annex in Sacramento, as reported in ENGINEERING NEWS-RECORD, Jan. 17, p. 29. The figure should have referred to the possible aggregate loss to all of the contractors—both prime and sub—engaged in the operation.

Senate group expedites power boom

Electric power expansion is finally getting the attention in Washington that utility men have been demanding.

First the Defense Production Administration's special Morehouse committee reviewed the industry's 3-year 30-million kw program and found it conservative (ENR Jan. 17, p. 27). Now the congressional "Watchdog" Committee on Defense Production has told the mobilization agencies to firm up the program wherever possible.

Main recommendations of the "Watchdog" Committee:

• Consider setting up an Office of Electric Power with authority to bust material bottlenecks which have been hampering the expansion program.

• After considering the Morehouse report, set up a firm expansion program, and see that materials are allotted to meet it.

• Clear the way for interconnecting power systems to bring about more equal distribution of electricity.

• Daylight saving time would help ease peak power loads in some regions.

Because the "Watchdog" Committee is charged with keeping a legislative eye on the mobilization agencies, its recommendations are bound to carry weight. There is no guarantee that the suggestions will be followed, but there'd better be some good explanation if they are not.

The committee hinted that power should not have to compete with less essential industry in cashing in material allotment tickets.

• **Expansion activities**—A $30-million long-range expansion and improvement program is being studied by Nashville Electric Service. . . . Portland General Electric Co. has received a certificate of necessity for fast tax write-off on 65% of the estimated $24 million it will spend building the Pelton hydroelectric project on the Deschutes River in Oregon. . . . To build a huge hydroelectric project on the Cowlitz River, the department of public utilities of the City of Tacoma, Wash., plans to issue $146 million in bonds—about $30 million this year and the rest in 1953 and 1954. . . . An $18-million preliminary construction budget for 1952 has been approved by San Diego Gas & Electric Co. . . . Northern States Power Co. plans to raise $30 million this year to finance its construction program. . . . Although approval of the dam has not yet been obtained from the International Joint Commission, bids have been called for core drillings at the site of the proposed $242 million Libby Dam on the Kootenai River near Libby, Mont. The proposals will be opened Jan. 31 at the Seattle, Wash., district office of the Corps of Engineers. . . . Consolidated Gas Electric Light and Power Co. of Baltimore last week announced it has allocated $65 million for new facilities and improvements in 1952.

Niagara power plans released by Engineers

The U. S. Army's Corps of Engineers has sent out notice that survey report on Niagara River power development has been made and copies are open for inspection in Chicago, Cleveland and Buffalo offices.

Report was authorized by Senate Public Works Committee June 5, 1951.

Chicago Division Engineer, Col. W. P. Thrower's notice says that interested parties may submit statements with Board of Engineers for Rivers and Harbors up to Feb. 5—or ask for an extension of time or public hearings.

In the report on the development, the district and division engineers recommend adoption of a federal project for the design, construction and operation of the initial development at an estimated first cost to the United States of $268 million. No requirement of local cooperation is recommended. Estimated annual cost of maintenance and operation is $2 million.

Initial project, as recommended, consists of:

(1) An intake on the Niagara River near Conners Island at the foot of Hyde Park Blvd.; (2) An open waterway canal, located generally east of the city of Niagara Falls, of sufficient capacity to fit into ultimate plan of development; (3) A high-head powerhouse in the Niagara Gorge near Lewiston with an installed capacity of about 1,300,000 kw and space reserved for expansion to ultimate plan; (4) A pumping-generating plant of about 330,000 hp having a generating capacity of about 270,000 kw, with a storage reservoir for daily regulation, also near Lewiston; and (5) compensating (or regulating) works in the Niagara River just above Niagara Falls (ENR Nov. 22, 1951, p. 39).

Also included are necessary relocations of utilities, highways and other features. The compensating dam would be an international structure to preserve scenic spectacle.

On basis of this information, new report would seem to follow pretty much the broad lines of the Federal Power Commission report of September 1949.

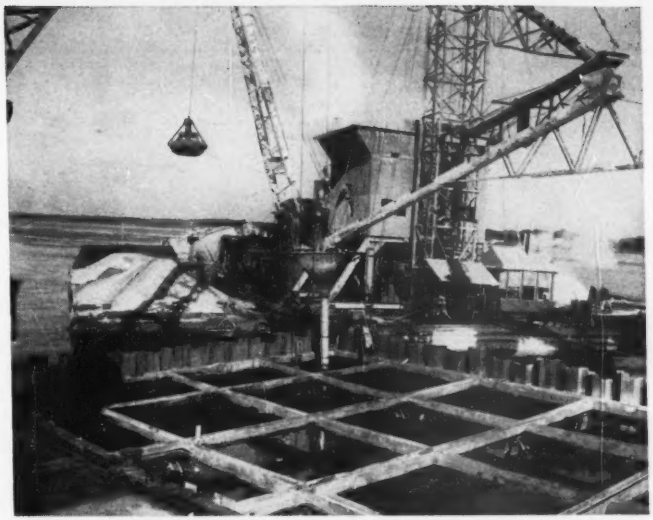
Cofferdam for pier collapses in Florida

A main-pier cofferdam for Arlington Bridge, Jacksonville, Fla., collapsed Jan. 15 while it was being dewatered.

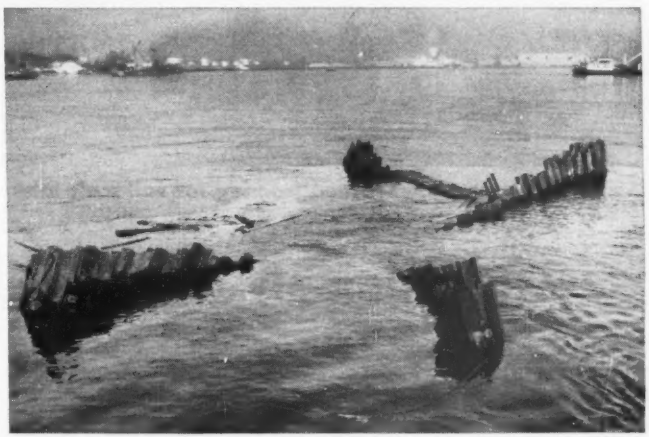
Plan size of the sheetpile cofferdam was 54 x 107 ft. The contractor, Merritt-Chapman and Scott Corp., New York, had completed placing a 20-ft deep tremie concrete seal on Jan. 8.

The failure began in top-bracing struts, which were being reinforced with timbers at the time. Water level was about −20, just above the lower set of bracing and about 15 ft above top-of-seal.

Arlington Bridge (John B. Mathews Bridge) is to cross St. Johns River. Its over-all length of 7,375 ft includes a cantilever bridge with 406-810-406-ft spans. The failure occurred at the site of one of the cantilever bridge's main piers.



COFFERDAM COMPLETED, a floating concrete mixing plant of Merritt-Chapman and Scott Corp. began mixing concrete and pouring it to form the seal for Pier 1-E of Arlington Bridge. . . .



THEN IT COLLAPSED while it was being dewatered and two carpenters inside making measurements narrowly escaped through small openings left at the top.

• **Workmen escape**—Cofferdam dewatering began Jan. 14. Soon strains were noticed in the top bracing and the contractor began to install timber reinforcement on the struts. This work continued into the next day, while the water was drawn down to about −20. At 9:30 am, while two carpenters were at work in the cofferdam, one wall buckled and the others followed, the structure folding like a paper bag. The carpenters escaped with injuries.

Parsons, Brinckerhoff, Hall and Macdonald, one of the bridge's consulting firms, says the cofferdam was adequately designed by the contractor. Soft river bottom mud, led the Parsons firm to take unusual precautions. Sheetpiles, which extend 15 ft below bottom-of-seal, are anchored to the seal concrete. The bracing was extra-heavy. The river is about 20 ft deep at the site.

The Parsons firm also is supervising the job. The condition that is said to have required upper-bracing reinforcement was strut damage, caused by battering from the clamshell that dredged the cofferdam.

• **New plan**—While Merritt-Chapman and Scott has not yet reported what its divers found below water, the Parsons firm tentatively has approved a plan for cofferdam reconstruction based on the assumption that the low bracing set still is usable and that the sheetpiles bent inward above that level. Sheetpiles will be cut off at the lower braces, and a new sheetpile enclosure will be driven at 1½ or 2 ft outside the old. A tremie seal will be placed in the peripheral space. Next top bracing also will be required.

The contractor has enough sheetpiling and bracing steel on hand to make the cofferdam repair immediately, it is understood.

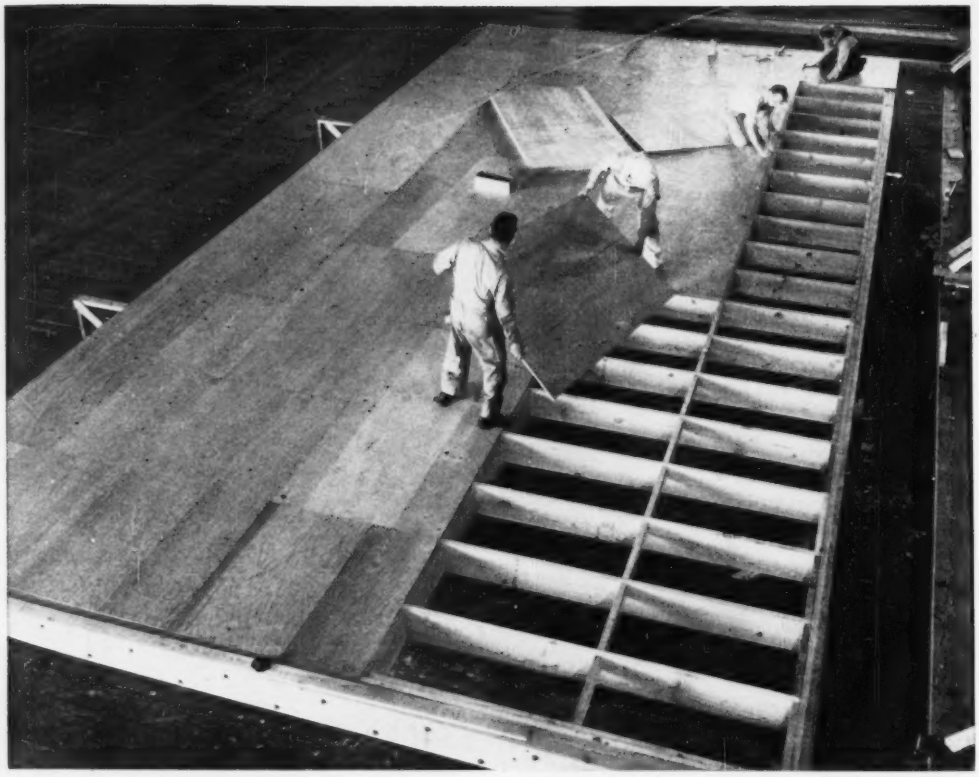
Only a week before the collapse, seal-placing operations were big news in Jacksonville. Sixteen pieces of floating equipment, including a mixing plant and a derrick, either clustered about the cofferdam or shuttled to and from a materials pier on shore. The tremie pour took 40 hours, during which 4,096 cu yd were placed.

Merritt-Chapman and Scott holds a $3.6-million contract for the major elements of Arlington Bridge substructure. The contract is about 80% complete.

Associated with the Parsons firm on bridge design is the Jacksonville firm of Reynolds, Smith and Hills.

The consultants' resident engineer, Stanley Johnson, as well as Robert Senn, MC & S project manager, and W. E. Dean, Florida State bridge engineer escaped injury by a narrow margin. They had been in the cofferdam five minutes before the collapse took place.

When it happened, according to the Jacksonville Times Union, people on shore reported it sounded like thousands of heavy bolts being dropped on metal.



Assembling plywood sheathed framing for full scale lateral load tests that provided necessary information on . . .

How to design plywood panels for buildings

David Countryman
Douglas Fir Plywood Assn
Tacoma, Wash

Editor's Note: This article describes tests first publicly discussed in a paper presented before the 1951 convention of the Structural Engineers Association of California. Because of the significance of these tests the author was asked to summarize results for ENR readers. Current material shortages add to the immediate usefulness of the data, but plywood officials hope the long-range use of such panels will also be favorably affected.

ENGINEERS can make better use of plywood sheathed diaphragms in floors and roofs for lateral force (wind and earthquake) resistance as a result of tests made by the Douglas Fir Plywood Assn. Plywood panels have been accepted for such use in the Uniform Building Code of the Pacific Coast Building Officials' Conference and design procedures have been developed. Immediate application of the research is possible since tests were made on full size specimens as well as quarter-scale models.

Although the PCBOC Uniform Building Code has permitted use of many materials as horizontal diaphragms for lateral force resistance, plywood sheathed roofs and floors—although long accepted for conventional use—were not included as structural diaphragms until the 1951 code revision. It has the data developed during the tests described herein that permitted a new evaluation of plywood for lateral resistance. Table I is adapted from the building code.

• **Design method**—When sheathed with plywood, the conventional frame roof or floor, with slight design modifications, becomes a structural diaphragm capable of resisting specified shears. Joist size and spacing are determined as usual by gravity loads. Blocking at 4-ft intervals under joints allows nailing on all panel edges, but may be omitted in some cases where diaphragm stiffness is not absolutely essential. Blocking width should equal joist width, but depth need be only 3 or 4 in. When blocking is not used for lateral support of joists, the depth should equal that of joists.

Boundary members at the diaphragm perimeter may be wood, concrete or steel. However, as such members act like flanges of a girder, they must be adequately designed—including splices—to resist flexural stresses caused by loads from any horizontal direction. Effective shear connections between diaphragm, boundary members, and walls must be provided (ENR, July 12, 1934, p 35).

Plywood thickness, if sufficient to carry the vertical design load for the given joist spacing, will be ample to carry diaphragm shear stress (total shear divided by plywood cross-section). Allowable short-time shear stress for the sheathing grade of Douglas fir plywood, PlyScord, is 240 psi. For joists spaced 16, 24, and 32 in., with $\frac{3}{8}$, $\frac{1}{2}$, and $\frac{5}{8}$ in. thickness respectively, the plywood will develop full shear without buckling when edges are blocked. Staggering panel joints gives strength in excess of that expected from nail-bearing alone. This is due to the bearing of panels from one course against another as the diaphragm deflects in the horizontally.

• **Nail spacing**—Most important variable among the design factors is the spacing of nails around all edges of each individual panel. This so-called "basic spacing" is found by dividing the allowable load per nail by the shear per inch of diaphragm width (maximum spacing should not exceed 6 in.).

Allowable nail load is the normal bearing value permitted by the building code, increased by one-third for short-time loading, and reduced by amounts up to 25% to account for close spacing and reduced edge distance.

Boundaries and the edges of openings, such as skylights, should be heavily nailed; half the basic spacing is adequate. For normal design, nail spacing on intermediate joists (i.e., not an edge of 4x8-ft plywood sheet) need be only 12 in. But when shears are high, panels may buckle if not securely attached to all framing. For such service double the basic nail spacing appears to be satisfactory for intermediate joists.

• **Deflection computed**—Plywood diaphragms deflect as elastic members; their deflection was found to be the sum of three factors—bending, web shear and nail deformation. For a diaphragm comparable to a uniformly loaded simple beam these are:

Bending deflection—

$$d_b = \frac{0.626\, vL^3}{EAb}$$

Shear deflection—

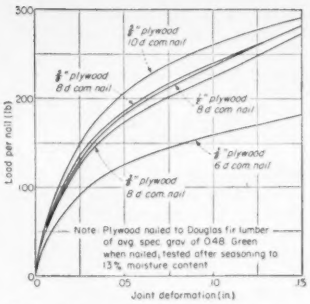
$$d_s = \frac{0.25\, vL}{Gt}$$

Nail deflection—

$$d_n = 0.0569\, Le_n$$

where v = shear (lb per ft); L = span, i.e., diaphragm length (ft); b = diaphragm width (ft); A = chord cross-sectional area (sq in.); t = plywood thickness (in.); E = chord elastic modulus (psi); G = shear modulus (110,000 psi for plywood); and e_n = nail slip (in.) at load per nail (see graph).

To illustrate, consider a single-story 40x120-ft building, without structural partitions, having 8 in. concrete walls, 20 ft high, and wood frame roof weighing 12 psf. A 15 psf wind applied to the side wall would place a shear in the roof of 9,000 lb, or 225 lb per linear foot of width at the end walls. If the same building is designed for a seismic load, the loads acting laterally might be assumed as 10% of the gravity load (dead load of side walls plus roof) or a shear in the roof of 14,880 lb or 372 plf.

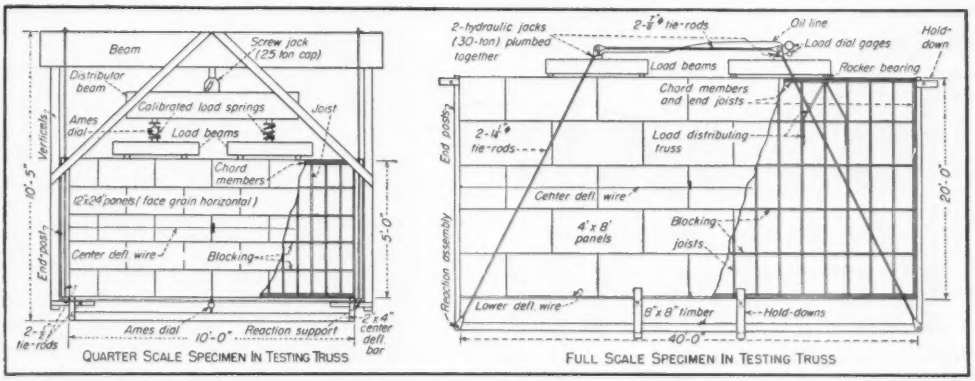

Load per nail (lb)
Joint deformation (in.)
⅜" plywood 10d com nail
½" plywood 8d com nail
⅜" plywood 8d com nail
⅜" plywood 6d com nail
½" plywood 8d com nail
Note: Plywood nailed to Douglas fir lumber of avg. spec. grav. of 0.48. Green when nailed, tested after seasoning to 13% moisture content

NAIL SLIP, i.e. joint deformation under load, is a factor in computing deflection of plywood panels under lateral load.

Reference to Table I shows that a satisfactory solution would be ½ in. plywood sheathing nailed to 1⅝ in. joists with 8d nails spaced 3½ in. for seismic load or nails spaced 6 in for wind load. Then suppose the chords consist of two 2x12 in. pieces having an elastic modulus E = 1,600,000 psi with nail slip e_n = .019 in. at the shear of 372 plf. The corresponding deflection is the sum of d_b = 0.168, d_s = 0.203, and d_n = 0.130, or a total of 0.50 in. This is well within a suggested allowable value for 8-in. concrete walls (Technical Bulletin, No. 1, Structural Engineers Association of Southern California).

• **Tests described**—The foregoing design method was developed from a program conducted in the Douglas Fir Plywood Association laboratory in Tacoma, Washington. Tests were made on six 5x10-ft quarter-scale models and four full-scale specimens 40 ft long and either 12 or 20 ft wide. In addition, many nail-bearing tests were made to find the effect of nail spacing, edge-distance and lumber seasoning.

Framing material for quarter-scale models was dry Douglas fir lumber nailed with 1 in. x 20 ga nails (corresponding to full-scale 20d com nails). Plywood panels were ⅛ in., 3 ply 12x24 in., nailed with ⅜ in. x 20 ga nails (corresponding to 8d com.). Chord members were doubled and splices bolted; all panel edges were blocked. Nailing was as shown in



TEST SET-UP for both quarter and full scale specimens included loading truss that exerted lateral force at fifth points. Sketches show basic set-up, but a 12 ft width was also tested.

ON QUARTER SCALE MODEL the author applies load by jacking through calibrated springs. Looking on are N. S. Perkins, DFPA technical director and Prof. A. L. Miller, University of Washington.

Table III, with boundary nailing generally double the basic nailing.

Panels were loaded at the fifth points of a 10 ft span in a testing frame, with a 25-ton jack acting through two calibrated springs. Data on residual deflections under loads of increasing magnitude were obtained by reading mid-span deflections. Stress distribution was studied with a 2-in. Whittemore strain gage.

• **Full-scale tests**—Four full-scale specimens, either 20x40 ft or 12x40 ft, were built and loaded in a pin-connected steel and timber testing truss. Loads were applied at the fifth points of the 40-ft span with twin 30-ton calibrated hydraulic jacks, plumbed together so as to apply identical loads.

Field construction conditions were simulated for the first specimen by nailing ½-in. plywood to green lumber of mixed No. 1 and No. 2 grades. It was allowed to season before testing, with the resultant lumber shrinkage causing loose bolts and open joints. Also some panels were purposely placed off the joist centerline with bearings as little as ⅜ in., requiring slant-driven nails. The other specimens were built with the same frame, but differed in nailing schedule or width.

The second quarter-scale model is analogous to the first full-scale specimen. From these two were developed relationships that make interpretation of the quarter-scale research possible. By comparing the ultimate load on the two, a scale factor of 10.83 was developed. This figure is used in Table III to show comparable full-scale shears for the quarter-scale models.

Ratio of ultimate deflections for the two analogous specimens is 4.0; this also is the size scale factor.

• **Girder action shown**—Most notable observation was that the diaphragm behaved as horizontal girders having fully shear-resistant webs. This means that stresses in individual parts and the deflection of the member as a whole can be calculated accurately using familiar methods. Strain gaging showed individual parts acting in accordance with flexure theory. End posts rotated a little, but bowed only slightly, indicating no important thrust from the sheathing.

Because of numerous gage and dial readings, it took about three hours to reach the design value, under application of initial loading. When this was released, an average set of 20% was noted. Six subsequent loadings developed about 4% additional deflection and set. After reaching their ultimate loads, which ranged from 4½ to 7½ times the design load, the full-scale specimens did not give way, but actually recovered considerably upon release of the load.

It was evident that the strength was governed by the nails, particularly those at the panel edges. These nails were generally bent parallel with the edges in the direction of shear, although those near the corner were bent at 45 deg as a result of carrying both horizontal and vertical shear components.

As two to three times the design load was applied, panel joints perceptibly opened, with panels from one course rotating and coming into bearing on those below. A calculation of the ultimate load per nail indicates that considerable additional strength was developed by this panel bearing, which was made possible by the staggering of transverse joints. However, the panel bearing in some cases caused a localized compression buckling in the adjacent plywood near the ultimate load. When this occurred, it was found that the ultimate load could be increased by increasing the intermediate nailing.

Nailing at the end joists when it was equal to the basic nailing limited the strength of the diaphragm. Doubling this end-joist nailing increased the ultimate strength by 50%.

TABLE I—ALLOWABLE LATERAL LOADING ON PLYWOOD DIAPHRAGMS

			Shear (lb-per-ft width) Width of Framing Member (in.)					
			2 5/8 or more			Less than 2 5/8 but not less than 1 5/8		
Plywood thickness (in.)	Nail size	Nail spcg. on all panel edges (in.)	6	4	3	6	4	3
5/16, 3/8	6d com.		185	280	315	165	250	280
3/8, 1/2, 5/8	8d com.		265	400	450	240	355	405
1/2, 5/8	10d com.		320	480	545	285	425	485

Notes: Tabulated shears shall be reduced one-fourth for other than wind or seismic loads. Table is for Douglas fir and southern pine framing; for other species, values should be adjusted. Diaphragm width is measured parallel with the load.

TABE II—TEST DATA ON FULL-SCALE PLYWOOD DIAPHRAGMS

Spec. No.	Basic Nailing	Construction	Design Shear (lb/ft)	Ultimate Shear (lb/ft)	Ratio Ult/Design	Deflection at Design Shear (in.) Calc.	Actual	Manner of Failure
I	8d com. @ 6"	nailed green; seasoned before testing	240	1388	5.8	.123	.105	nail bearing
II	10d com. @ 4"		425	1920	4.5	.140	.140	nail bearing and local web buckling
III	8d com. @ 6"	12' width	240	1750	7.3	.082	.075	same as II
IV	8d com. @ 6"	12' width; blocking omitted	180 (3/4 of III)	1400	7.8		.090	nail bearing and web buckling along free edges

Boundary nailing on chords was also doubled to develop the chord stress. When the critical shear is applied in the direction of unstaggered panel joints it is recommended that nailing on these joints be 50% greater than is otherwise indicated. Normally panels should be staggered in the narrow (i.e., more critical) dimension.

Alternating lines of 2x10 in. and 2x4 in. blocking at 4 ft prevented the loaded joists from buckling laterally at 19,200 lb, in Specimen II, although 1x4 in. diagonal bridging at 6 ft permitted such buckling at 8,400 lb in Specimen IV. Solid blocking is preferable for load distribution within the member.

In Specimen 5 skylight openings removed 40% of the effective diaphragm width, but by doubling the basic nailing in the critical shear area, 78% of the strength of a solid diaphragm was obtained, although stiffness was considerably reduced.

Nail-gluing more than doubled both stiffness and strength over a comparable panel (Spec. 2 and 4). It may be desirable to consider gluing some panels, such as those with openings, to increase their stiffness.

• **Nail tests**—Minor nail-bearing tests were made to determine the load-deformation curves for computing diaphragm deflection, and to find the effect on strength of edge distance, nail spacing and lumber seasoning. These differed from previously published tests (ENR May 6, 1943, p 121) in that load was applied parallel to edges of wood and plywood as it actually is in the diaphragms themselves, rather than perpendicular to them. The combined effect of reduced spacing and edge distance results in nail load reductions ranging from zero to 24%, and has been included in the allowable shears set forth in Table I.

Lumber nailed green, then seasoned to 13% moisture content, actually increased ultimate nail loads as compared with lumber nailed and tested at 13%, due to a tendency of the latter to split. However, initial stiffness of the latter was about 4½ times that of the former. For calculating deflection it is conservative to assume that framing will be made with green lumber which subsequently seasons. Load-slip curves for this condition are shown in Fig. 2.

Tests were performed by the author, aided by Vernon Haskell, and were supervised by N. S. Perkins, technical director for the Douglas Fir Plywood Association. Professor A. L. Miller, of the University of Washington, rendered valuable advice.

TABLE IH—TEST DATA ON QUARTER-SCALE MODEL PLYWOOD DIAPHRAGMS

Spec. No.	Basic Nail Spacing (5/8"-20 ga.)	Construction	Ultimate Shear (lb)	Ult. Shear x Scale Factor (10.83/20) (lb/ft)	Manner of Failure
1	1 1/2"	End joist nails spaced 1 1/2"	1,770	960	Nails pulled from end joist
2	1 1/2"	End joist nails spaced 3/4"	2,560	1,390	Nails failed in end panels from vertical shear
3a	1/2"	Intermediate joists nailed at 3"	4,200	2,280	Web buckled under load points across intermediate joists
3b	1/2"	Intermediate joists nailed at 1"	5,050	2,740	Web buckled and split, followed by nail failure and shear at end panels
4	1 1/2"	Web glued to frame	5,885	3,180	End panels sheared from frame in glued joints
5a	1 1/2"; doubled around openings	10 skylight openings @ 12" square	1,220	660	Shear at nailed joints between openings
5b	Same as 5a but nails spaced 3/4" through outer fifths of specimen	Same as 5a	1,900	1,080	Same as 5a
6	1 1/2"; 1" in outer vertical joints	Joists parallel with span. Panel joints not staggered vertically	2,660	1,440	Nails pulled from outer vertical joint

Sacramento River may get $70 million water project

A U. S. Bureau of Reclamation report just completed is one further step toward federal development of power and irrigation facilities in northern Sacramento Valley. If funds are appropriated by Congress, construction will start on a $70 million Sacramento River Canals project.

The new work, to be added to the nearly completed Central Valley project, is separate and distinct from the recent billion dollar proposals made by the state of California for a statewide scheme that includes some of the very same area (ENR June 7, 1951, p 25).

The construction program will provide additional water for 200,000 acres in Tehama, Glenn, Colusa and Butte Counties. It has been authorized by Congress, but no money has been appropriated, pending acceptance of the report.

Main features of the system include the 120½ mi main Tehama-Colusa Canal from Red Bluff to southern Colusa County, two smaller canals for local needs, a diversion dam on the Sacramento River south of Red Bluff, and a 24,000 kw capacity power plant on the river at Mooney Island, between Red Bluff and Gerber.

Annual costs, including amortization, are estimated by the USBR at $5.3 million and annual benefits at $11.5 million.

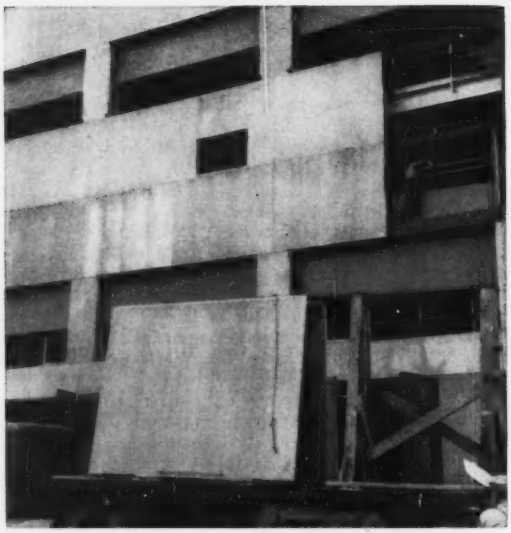
Under full development, 665,000 acre-ft of water will be diverted from the river annually, and 35% will be returned to the river after irrigation use. The power plant will utilize the 32 ft drop from the main canal to the river level at Mooney Island. Power generated will be used for canal pumping plants and the remainder sold commercially.

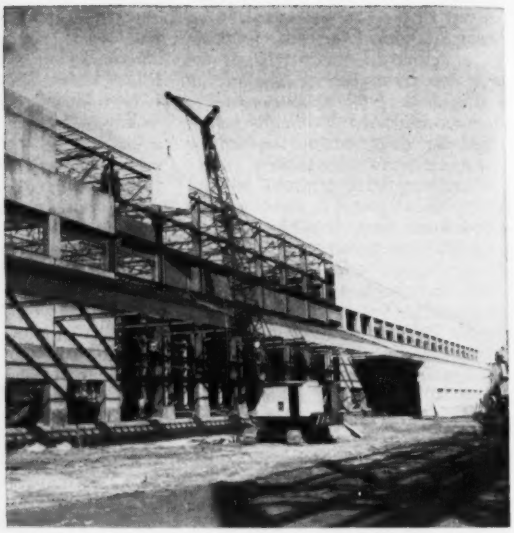
Provisions made for fish and recreation include a fish ladder at the Red Bluff diversion structure, and creation of a 5 mi lake on the Sacramento River adjacent to Red Bluff.

Another big building year predicted for Carolinas

Robert Patten, managing director of the Carolinas branch of the Associated General Contractors, predicts another multi-million dollar year of business in 1952 for North and South Carolina contractors.

In a statement issued recently he said military construction, alone, is expected to reach $200 million, not including additional millions to be spent on the Savannah River atomic energy project.





TRUCK-DELIVERED, insulated precast concrete wall panels are picked up with a crane and fastened to steel framing.

Precast sandwich wall makes costs tumble

P. M. Grennan
Project Engineer
Ford, Bacon & Davis, Inc.
New York, N. Y.

EXTERIORS of the buildings in a huge industrial development located five miles south of Marietta, Ohio, are being put in place at one-third less cost than 12 in. of brick. Yet, these walls form a strong, dry, warm, durable and attractive enclosure.

They are composed of large sandwich panels, in which a core of insulating material is incorporated between two thin layers of precast concrete. The panels are fabricated by production-line methods.

One building—a steam power station with about 60,000 sq ft of such panels—has been in use for over a year. As a result of experience with this structure, contracts for over 500,000 sq ft for other buildings comprising this plant have been awarded.

• **Search for brick substitute**—Electro Metallurgical Co., a division of Union Carbide and Carbon Corp., is investing $100 million in the Marietta plant to increase production of ferroalloys—ferrosilicon, ferromanganese, silico-manganese and low-carbon ferrochrome. Steelmakers use these as refining agents and to give their steels heat or corrosion resistance, high strength and workability.

When design studies were made for Electromet's power plant at Marietta in 1948, masonry walls were found costly ($3.50 for a 12-in. brick wall). At the company's request, an investigation was started by the consulting engineers to find a suitable substitute.

Research led in many directions. Cost comparisons, including maintenance costs, were made for many designs. Time for erection was considered. Durability and thermal conductivities were evaluated. And above all, possibilities of large-scale production were investigated.

The sandwich panel finally designed and now being erected at Electromet's new plant is another step in the evolution of this type of construction. It represents a careful integration of many properties required in fabrication, erection and service.

• **Thin panels save space**—Typical panels are made square, or nearly so, to equalize shrinkage in vertical and horizontal dimensions. They were designed in two basic sizes—8x8 ft and 8x10 ft—cast in steel forms with a tolerance in dimensions and warping of plus or minus 1/16 in.

These sizes resulted from a compromise. For a low percentage of joints per square foot of surface area, large panels were desirable, whereas for ease in handling and erection, small panels were preferred. Re-use of steel forms likewise was a factor in fixing the final sizes. Panel heights conform with the sash, combinations of which form continuous bands around the building, to give the structures an attractive outer appearance.

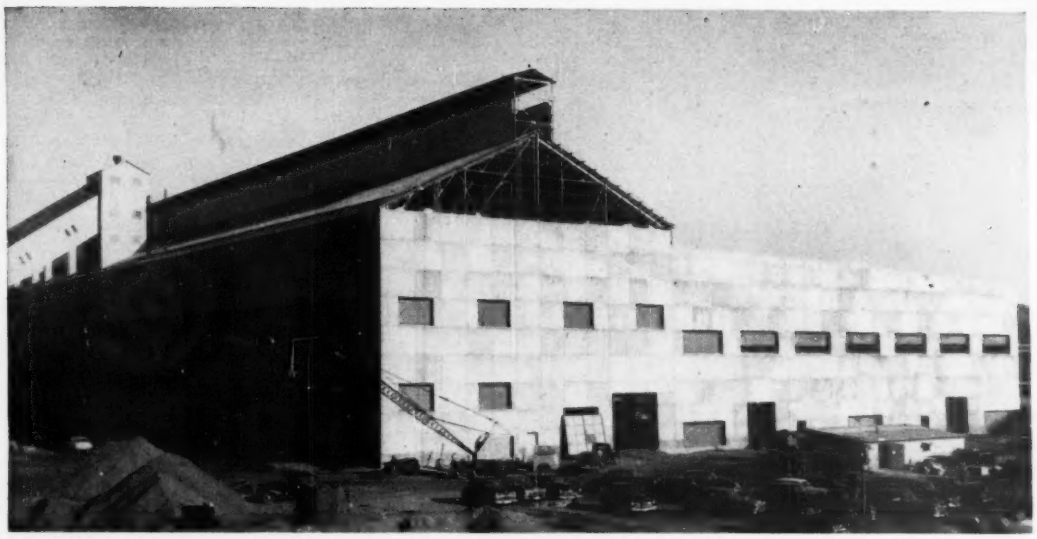
Panels are only 5 in. thick. Hence, an additional 7-in. wide strip of floor area is available for plant use around the perimeter of each building, compared with a 12-in. brick wall.

Composed of 1½ in. of insulation sandwiched between two 1¾-in. layers of concrete, the panel thickness was the result of many functional requirements, particularly for the joints. Stress analysis indicates a strength for the panels well in excess of that needed for a 20-psf wind load.

• **High-strength concrete**—To reduce to a minimum the possibility of irregular appearance in color of panels, specifications require that all cement, aggregates and water be obtained from the same source for each structure. For durability, an air-entraining agent is added at the mixer. Entrained air must be at least 3½% and not more than 4½%.

Concrete must have a minimum strength of 4,000 psi in 28 days. Having a slump between 2½ and 3½ in., it is made with high-early strength cement (6 bags per cu yd) and ¾-in. maximum-size aggregate. Tests are made at 7 days or 28 days. To date, 7-day test results have been averaging 4,300 psi; hence, few 28-day tests are required, since they are not necessary when 7-day strengths exceed 4,000 psi.

Each layer of concrete is reinforced with 4x4-in. No. 10 wire mesh, which is procured in flat sheets to insure a



CONCRETE WALLS of the buildings in a huge industrial development at Marietta, Ohio, are low-cost and good-looking.

uniform 1-in. concrete cover. Tips of chairs are galvanized or cadmium plated where they contact the finish face of panel.

Strips of expanded metal, bent to form 2½-in. deep channels, tie the concrete layers together. They also serve as spacers for the sheets of insulation forming the core of the panels.

For handling and erection, two U-bars are embedded in recesses in the top edge of each panel. Metal reglet inserts for roofing are cast in the inside face of parapet panels. And two threaded metal inserts to receive connection bolts are embedded at the top and bottom edges of each panel. Inserts must be placed within plus or minus ¼ in. of the position shown on design drawings.

• **Insulation**—With 3,000 sq ft of panel scheduled to be produced daily, an adequate continuing supply of insulating material is of prime importance. At least 12 different materials were considered by the designers. Four were chosen: Durisol, a precast concrete slab made with wood-chip aggregate; Porex, a precast concrete slab made with wood-fiber aggregate; Foamglas, a cellular-glass insulation block; and Fiberglas, glass-fiber insulation board. Comparative studies were made of cost, supply, handling, cutting, water absorption, size of units, weight and uniformity of thickness.

Both insulating value and cost of these materials vary widely. They are being supplied in sheets 2 ft wide by 8 ft long, a size most adaptable for economy of handling in the fabricating shop. The 2-ft width fits the vertical spacing of the shear ties, and the exact length is established by the height of the typical panel. A nominal amount of cutting of insulation is needed for inserts and odd-size panels.

Obviously, resistance to thermal conductivity of the sandwich panel can be varied at will with proper choice of insulating material, even though the thickness of the core is constant. Calculated values for the four materials approved provide a range in coefficient of heat transfer (U-value) from 0.14 to 0.33 Btu per hr per sq ft per deg F. Since U for a 12-in. brick wall is 0.36, the panels have better insulating values with but 1½ in. of insulation.

The required U for the exterior walls of the plant was determined by a study of climatic conditions with respect to interior humidity characteristics. With a well insulated wall, condensation on the inside face is improbable for the humidity likely to be found in these buildings. In general, when the differential between outdoor and indoor temperatures is greatest, the humidity on the inside is relatively low.

The question of vapor travel through the panels was also carefully considered. By plotting dry-bulb temperature gradient and dewpoint gradient through the wall, designers determined a limited theoretical condensation zone for certain extreme conditions. In no case, however, did this analysis warrant the need for a vapor seal.

Furthermore, the uniformly high density of the concrete and the low vapor pressures anticipated are considered to be natural inhibitors of vapor travel. The designers also reasoned that there was not a sufficient volume of voids in the insulation to cause trouble by freezing of entrapped moisture.

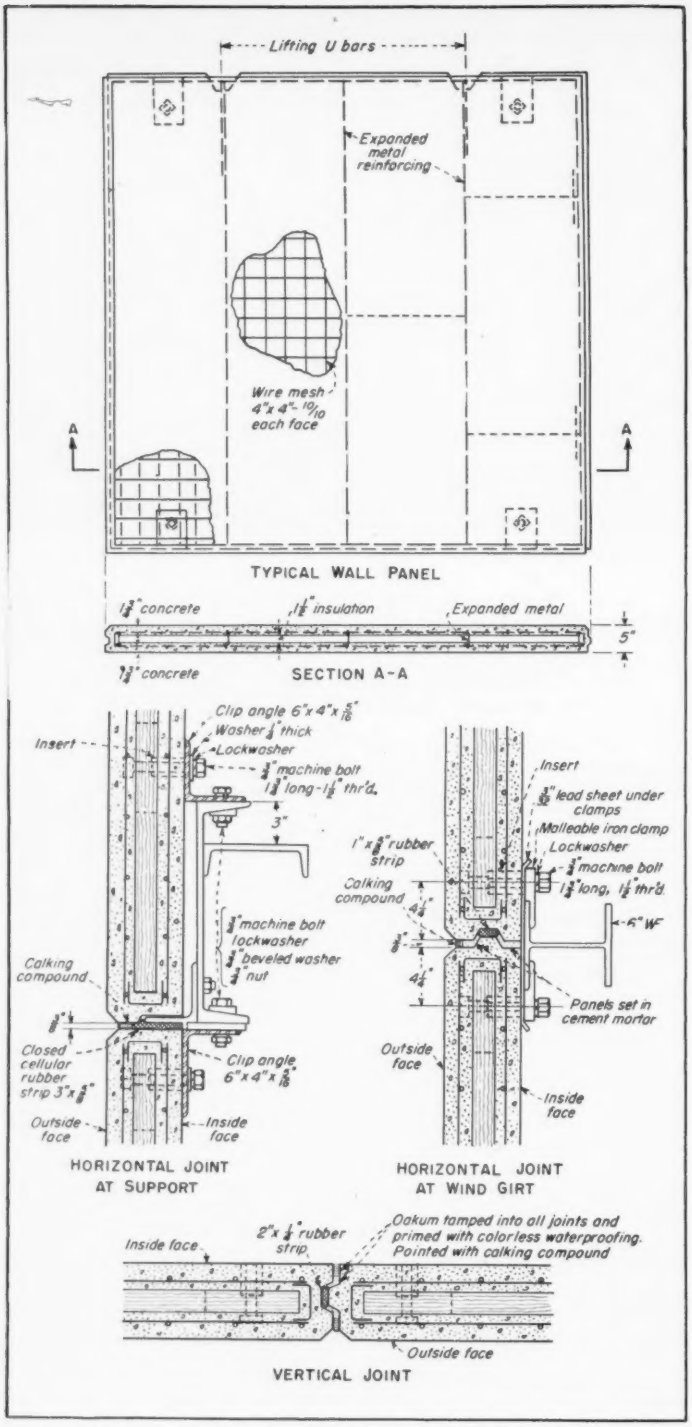
Additional protection against moisture penetration is provided at the edges of all panels by the solid continuous band of concrete there. This band forms a tongue and groove while also serving to reinforce the edges.

• **Joints**—The design of the tongue-and-groove joints established the 5-in. thickness of the panels. Prime objective, of course, was water-tightness, though other factors also were given consideration.

The tongue and groove serves not only as a formidable water dam but also as a self-aligning medium in positioning panels on the steel building frames. Beveled edges on the exterior face make slight unevenness of adjacent panels unnoticable. Chipping and spalling are similarly minimized.

Prior to erection, a continuous, impervious, cellular rubber strip is cemented in the grooves with a rubber adhesive. After the panels are erected, joints are packed with oakum and calked. No oakum is used, however, in horizontal joints where one panel bears directly on the one below. There, panels are set in cement mortar. The joint on the outside is raked to a depth of ¾ in. and then calked to maintain the same appearance as other joints.

While a light gray calking compound is applied on the inner side of each joint, a dark gray—almost black



WALL PANEL, only 5 in. thick, consists of a layer of insulation sandwiched between two thin layers of concrete. Inserts are embedded in the concrete for handling and erection and for fastening to building frames. Joints are tongue-and-groove. Panels, cast in steel forms, generally are either 8 x 8 ft or 8 x 10 ft.

–compound is used on the exterior, for architectural effect. The dark color accents the joints far more than the beveled edges do, whereas a light color is almost unnoticeable.

• **Surface treatment**–The inner face of the wall has a smooth, but not slick finish, that will minimize glare and furnish an excellent surface for painting. The finish was produced by lining the steel form with muslin. When the material is stripped from the hardened concrete, its texture remains imprinted on the wall surface.

The outer face is finished with a wood float and a rattan broom. This creates a series of fine uneven grooves that extend vertically up the buildings, interrupted only by the horizontal beveled edges at each joint.

• **Connections**–Panels are supported on the steel frames of the buildings at every third course. Wind loads are taken by girts at the level of each horizontal joint.

Inserts cast in each panel, together with loose clip angles and malleable iron clamps, form adjustable and positive fastening devices (see drawing). Thin strips of lead provide a cushion between concrete and steel fastenings.

• **Costs**–The first 60,000 sq ft of an ultimate 80,000 sq ft for the power station was fabricated by the Cemenstone Corp. at Neville Island, Pittsburgh, Pa., and transported to the site on open trailer trucks. They were placed by crane.

The erection crew consisted of ten men and a foreman. Under normal conditions, 2,000 sq ft of panels were erected in an 8-hour day. Costs for the initial installation of 60,000 sq ft, which was completed in 1949, was $2.00 per sq ft of wall area.

Panels for the other plant buildings are now being manufactured and erected by the Marietta Concrete Corp., which has been awarded a contract for a grand total of more than 500,000 sq ft.

Production facilities for 1,000 sq ft per day were set up in an existing precasting plant and a new plant was built at a cost of $150,000, including equipment, specifically for production of sandwich panels. Capacity of the new plant is now 2,000 sq ft per day, but is being increased to 3,000 sq ft per day.

A description of the precasting setup and the methods used for assembly-line production of panels will be in a subsequent article of ENR.

Costs under the present contract for the panels in place range from $2.13 to $2.46 per sq ft of wall area. These figures include calking and

(*Continued on page 39*)

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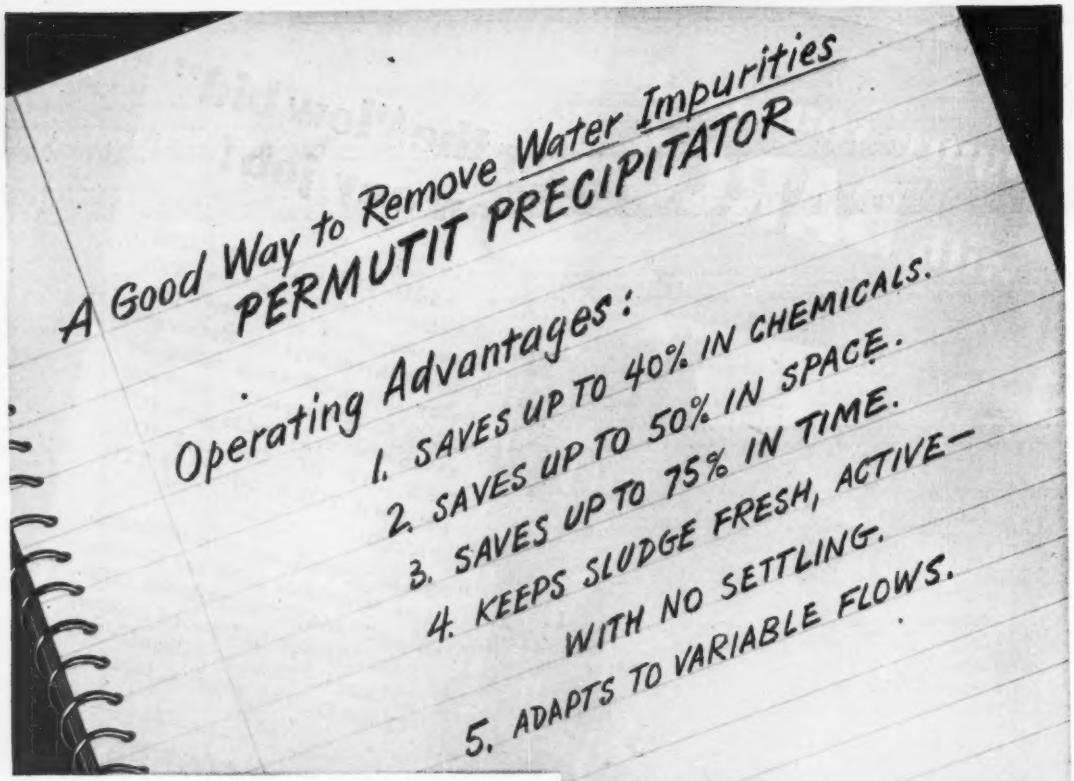
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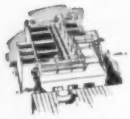

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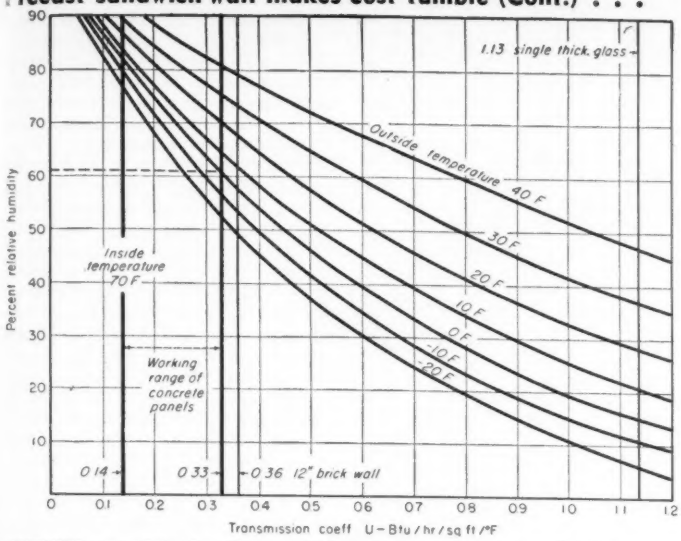
Precast sandwich wall makes cost tumble (Cont.) . . .



CURVES give relative humidity at which moisture condenses on wall interior.

accessories, such as clip angles, bolts, clamps, joint materials and inserts. Here is a percentage breakdown of the $2.46 price:

Shop Drawings		2.8%
Fabrication		58.0
Materials	31.6%	
Labor	20.7	
Plant	5.7	
Handling and trucking (5 mi)		3.7
Fastening devices		4.5
Erection and crane rent		16.3
Calking and joint material		4.5
Profit and overhead		10.2
Total		100.0%

The sandwich wall panels for Electromet's Marietta plant were designed under the supervision of Electromet, by Ford, Bacon & Davis, Inc., consulting engineers, New York, who also provided inspection during fabrication and erection.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Implied warranty of work

A contractor agreed to and did install a roof covering on a flat deck which had been erected for the owner of the building. The owner brought an action against the contractor to recover damages resulting from the improper performance of the work.

The trial court found as a fact that the roofing installed was not sufficient and as a result of the defective work damage resulted to the building and its contents. The owner was awarded a judgment which judgment was affirmed on appeal.[1]

The contractor claimed that the conclusion reached by the trial court that the law implied a warranty that said roof covering would be proper for its intended use, to wit, to effectively keep water out of plaintiff's said house, whether stated expressly in the written agreement or implied in law, was part of the contract was erroneous since the written agreement between the parties provided that the written instrument was the only agreement between the parties and said agreement contained no warranty as to the sufficiency of the work. The court refused to accept this contention stating in its opinion: "The following quotation from Roscoe Moss Co. v. Jenkins, 55 Cal App. 2d 369,376, 130 P. 2d 477,481, is applicable to the present situation: 'A general statement is found in 38 Am. Jur. 662, Section 20, reading as follows: "Accompanying every contract is a common-law duty to perform with care, skill, reasonable expedience, and faithfulness the thing agreed to be done, and a negligent failure to observe any of these conditions is a tort, as well as a breach of the contract." The rule which imposes this duty of universal application as to all persons who by contract undertake professional or other business engagements requiring the exercise of care, skill and knowledge; the obligation is implied by law and need not be stated in the agreement'."

The court in its opinion further stated: "The contract here under consideration involves a construction job and not a mere sale of roofing material as appellants' [contractors] brief seems to suggest. Obviously, the statement in the written contract that it contains the entire agreement of the parties cannot furnish appellants an avenue of escape from the entirely reasonable obligation implied in all contracts to the effect that the work performed 'shall be fit and proper for its said intended use,' as stated by the trial court. Such rule is applicable to a roofing contract as to one for the drilling of a well, which was the subject of the contract in Roscoe Moss Co. v. Jenkins, supra, cited in the preceding paragraph. Such being the law, the admission of testimony relating to this matter furnishes no reversible error."

(1) Kuitems et al v Covell et al, 291 P. 2d 552.

Defective construction

An owner entered into a contract for construction of a house pursuant to plans and specifications prepared by an architect. Upon advice of that architect, following completion of the house, the owner signed a notice of completion and moved into the house. Shortly thereafter, he discovered that floors were not level and that plaster was cracked due to sinking of the foundation. As a result, he refused to make final payment to the contractor.

The contractor filed a mechanic's lien and then brought action to foreclose the lien. The owner denied liability and counter-claimed against both the contractor and the architect for the cost of repairing defective work.

At the trial it appeared that during construction of the foundation the owner reported to the architect that it was being laid on loosely filled ground instead of being below the natural ground level, as called for in the specifications. Also developed was the fact that this deviation had been made on instructions from the architect. Consequently, the court limited the judgment against the contractor to the damage resulting from his defective workmanship. The owner obtained a judgment against the architect for the damage resulting from his having given the contractor instructions to perform the work in an improper manner and in violation of the specifications for the work.[1]

(1) Alexander v Hammarberg, 230 P. 2d 399, District Court of Appeals of California, April 27, 1951.

Erection of Texas skyscraper employs good ideas on . . .

How to cut building delays

WHAT CAN YOU DO to keep a building job moving while waiting for structural steel? What can you do when you have the steel, but have to seat it on concrete walls for which you first have to place intricate reinforcing?

You may find a good answer to these questions in what was done for the 15-story Fort Worth National Bank Building, Fort Worth, Texas.

One of the tallest buildings in the city, it has an all-welded steel superstructure. It is roughly 100x200 ft in plan at the base, changing to a T-shape above the third floor. It contains 267,000 sq ft of rentable space.

The bank will occupy the first, second and third floors, the basement, and part of the sub-basement. Upper floors will be rented as office space.

• **Before steel arrived**—Foundations presented no serious problems. The work went fast.

Building columns are suported on reinforced concrete footings bearing on rock. Even though excavation for the sub-basement had to go to a depth of 40 ft below grade, underpinning adjacent buildings was a minor problem because rock extended to very near street level.

So that the job would not be delayed while the contractor waited for structural steel, the designers called for reinforced concrete columns in the sub-basement to support the flat-slab basement floor.

Largest of these is 28 in. square. It is made of 5,000-psi concrete, with two layers of rail steel in each face.

• **Novel connection**—The splice at the changeover from a concrete column to steel is also noteworthy. If conventional practice had been followed, the steel column would have been seated on a 4 or 5-in. thick steel base plate on the basement floor. This would have necessitated a deep depression in the flat slab at the column, thus interfering with the continuity of the slab.

Instead, the designers placed the splice 3 ft above the basement floor and eliminated the thick base plate. For transferring the load between the steel and concrete columns, they called for a stub column.

This consists of four steel angles back to back encased in concrete. The bottom of the angles is embedded in the concrete column, and the top is capped with a 1½-in. plate, to support the steel column. Holes were punched in the cap plate to receive dowels from the lower column. Later, to give the plate a smooth top surface, the holes were plug welded. A steel spiral then was wrapped around the stub column.

The steel column was welded to the cap plate, making milled surfaces unnecessary. After the upper member was set, concrete for the stub column was poured from the basement floor to within 2 in. of the under side of the cap plate. Finally, the gap under the plate was closed with a stiff mix of non-shrinking grout.

• **Reinforcing placed fast**—In one part of the building, the structural steel is supported on top of the bank vault. The design of the vault calls for a 23-in. thick concrete wall with alternate layers of straight and bent ¾-in. rail steel reinforcing bars in a tight grid. If the contractor had followed conventional practice in placing and tying this steel, erection of the structural steel would have been delayed.

He had a better plan. While the vault foundation was being poured, he prefabricated the reinforcing into 19-in. wide mats of required lengths. He set the mats in the walls with a crane, inserted dowels and welded them together. Concrete was made with a pea-gravel aggregate and placed with the aid of a mechanical vibrator attached to the reinforcing. (Strength of concrete was 3,000 psi in 28 days.) This method made earlier erection of steel on the vault possible.

• **Big girders**—The steel frame of the building incorporates some unusually heavy girders. These carry heavy loads on a relatively long span.

Steel girders over the banking room span 53 ft and carry columns at their third points. These columns support 12 floors of the building, a penthouse, a machine deck and a roof over the machine deck.

For most of their length, the girders are of welded hollow-box construction, 6½ ft deep. The center portion—where shear is small— is trussed. This not only saved weight, but it made possible a doorway in that area. The girders weigh 47,000 lb apiece, with-

out the metal lath and plaster fireproofing in which they are encased.

The rest of the steel framing is more or less conventional for a welded job. Clips were shop welded to the beams and columns so that the frame could be bolted together during erection. After the frame was plumbed, shear and moment conections were welded, welders working in pairs at each joint and progressing from the elevator shaft at the center of the building to the outside columns. This welding sequence, the designers say, tended to reduce distortion.

A total of 1,933 tons of structural steel went into the frame, about 13 lb per sq ft of floor area.

• **Light, steel floor**—As soon as the connections were welded, a steel floor deck was laid down and welded to the beams. For the first, second and third floors, the deck is of cellular steel construction, with the cells serving as electrical conduit. Concrete made with stone aggregate was placed to a depth of 2½ in. over this flooring.

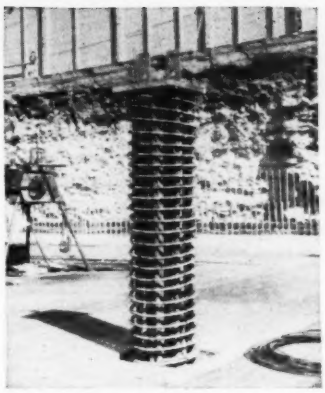
Above the third floor, the designers called for 1½-in. deep steel roof deck, with a 2½-in. concrete topping covering an under-floor electrical duct system. They say that this design saved a considerable sum of money compared with the cost of the lower floors and still provides adequate electrical outlets. It also has many of the advantages of the cellular steel decking.

• **Light fireproofing**—Exterior walls are 8 in. of brick, with greenstone spandrels under the windows. Interior partitions around stair and elevator shafts are clay tile; office partitions are gypsum tile.

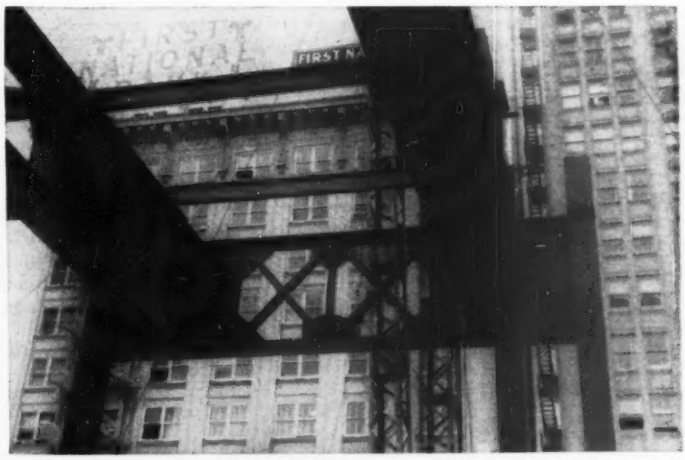
Columns are fireproofed with stone concrete up to the second floor. Above, fireproofing is lightweight plaster. Except for the box girders, a suspended plaster ceiling is used to fireproof the floor system.

• **Air conditioning**—The building will be air conditioned by separate interior and perimeter systems. Under the windows are units supplied with tempered high-velocity air. The temperature of water circulating through the units is regulated by zone thermostats, which thus control final room temperature. Interior spaces are conditioned with a conventional duct system. Supply air is cleaned by electrostatic filters and permanent-type cleanable filters.

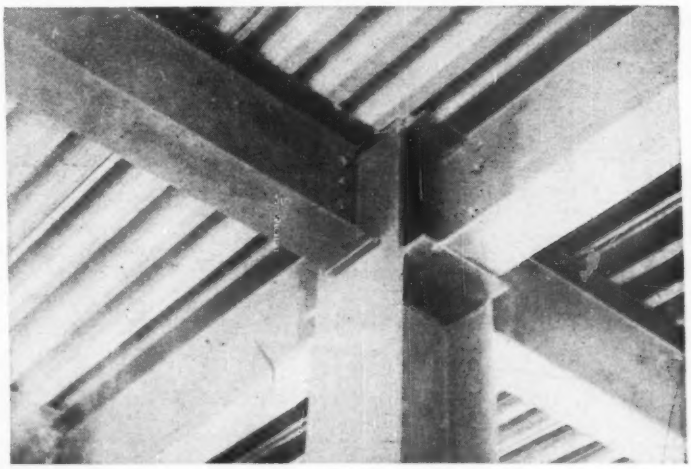
Preston M. Geren, of Fort Worth, was the architect and engineer for this $5,500,000 building, and Shreve, Lamb & Harmon Associates, of New York City, were consulting architects. Thos. S. Byrne, Inc., of Fort Worth, is the general contractor.



STUB COLUMN (left) projects 3 ft above basement floor from reinforced concrete column below to support structural steel column (right).



WELDED BOX GIRDERS spanning 53 ft support columns at third points. Center portions are trussed to reduce weight and allow for door openings.



CONNECTIONS were bolted temporarily, later welded. Floor is steel decking. Later, columns were fireproofed with lightweight plaster, the floor system with a suspended plaster ceiling.

The Surveyor's Notebook

Reporting on Unusual Surveying Problems and Their Solutions

Notekeeper: W. & L.E. Gurley, America's Oldest Engineering Instrument Maker

Mexican Jigsaw Puzzle

"Have you ever subdivided 50,000 acres into nearly 200 lots in accordance with rights of 600 people?" asks George S. Salter of the Bureau of Engineering, Chicago's Department of Public Works. "That was only one problem on an assignment down in Mexico 20 years ago.

"The Hacienda of Tanceme, about 60 miles south of Tampico in the state of Vera Cruz, was leased by an oil company with the provision that it be subdivided into lots corresponding to rights of the various owners. These rights, or *derechos*, had been passed down, generation to generation, from holders of the original Spanish land grant, issued around 1800 and delimited by metes and bounds.

"The persons holding rights belonged to about 200 families, so it was agreed to divide the area so as to give each family a lot. This led to quite a complicated puzzle, since each insisted on land where his house or pasture was already located.

George S. Salter, in Mexico, found "my mule as reliable as my Gurley for rough conditions."

Section of map of Hacienda of Tanceme, showing final line of disputed boundary with La Puente.

Settling a Boundary Dispute

"The limits of the hacienda were set by a survey requiring four parties and five months' work, and the area was subdivided. Some heirs could not be found, so one lot was assigned to *desconocidos*, the unknown ones. Then owners of three adjoining haciendas claimed that incorrect boundaries had been used. My job was to straighten them out.

"This involved considerable resurvey work, not to mention patience and diplomacy. We were aided by older men—*los conocedores*, the knowing ones—from each hacienda, who were to agree on dividing lines.

"One hotly-contested boundary was with La Puente to the north. Its people contended that a crucial point in the grant was further south than we had it in our original survey. A new point ('B' on map) was finally agreed on, and a 3.5-mile boundary west to an irregular line had to be re-established.

"This was all brush country; so a *brecha*, a cleared line about 1 meter wide, was cut through to connect 'B' with the original line. We computed the closing in the field; and a new line was cut from 'B' to a new point, 'A.' Believe it or not, using my Gurley Hell Gate 20-second transit, I hit the point within the width of the *brecha*."

We'd like your story for a future page in this series. Drop us a line...we'll contact you for details later. Ask for Bulletin 50 giving complete data on Gurley instruments.

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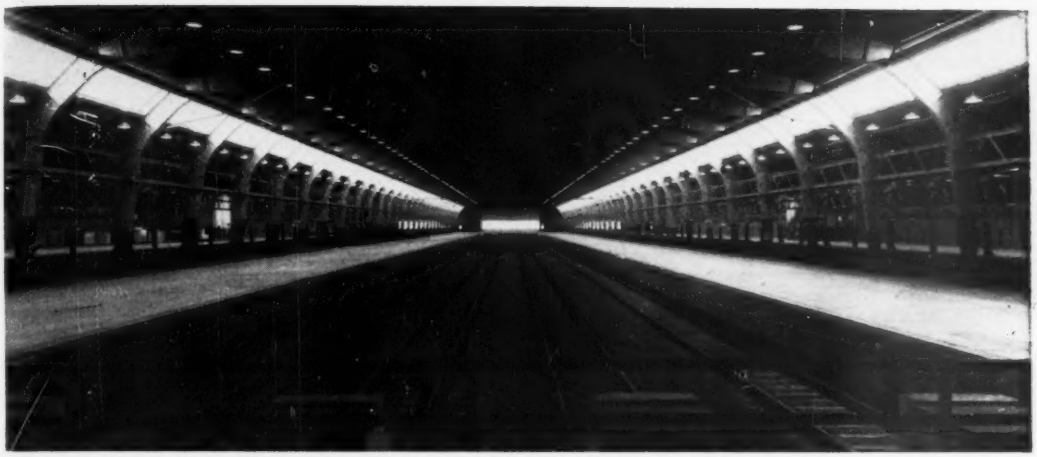


GREATER FREEDOM OF MOVEMENT on platforms of the new freight station has been obtained by placing columns at one edge instead of at the center as in older stations.

New freight terminal for St. Louis

THE FIRST MAJOR freight station to be put into service in St. Louis in the past 40 years was opened by the Missouri Pacific lines on Jan. 2. It is the Miller Street Consolidated Freight Terminal, occupying a five-acre site, which replaces the old station at Pacific and Poplar Streets, built nearly a century ago, and the old St. Louis, Iron Mountain Southern station at Main and Gratiot Streets, built in the Seventies.

The new station adjoins the Missouri Pacific's Lesperance St. yard and is served by four through tracks and by eight stub tracks entering at the south end. Along the east and west sides are paved roadways for truck delivery of freight.

Within the station, the side platforms, having both truck and track frontages at car-floor level, are 51 ft wide. The two interior island platforms, served by tracks only, are 30 ft wide. All platforms are 750 ft long.

The eight stub tracks and four through tracks in the station have a total capacity of 180 freight cars.

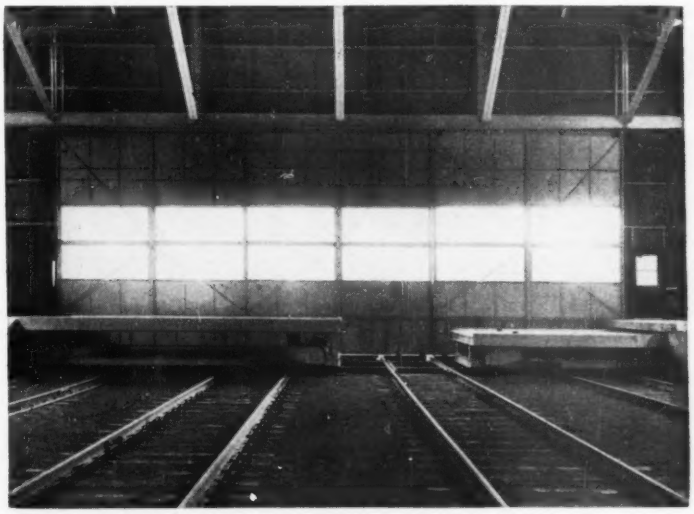
Connecting the platforms, except when switching operations are taking place, are "rollaway" bridges across the tracks at the ends of the station. These are of a new type, designed by engineers of the Missouri Pacific. They are considered to be a great improvement over the lift bridges used heretofore in this type of station. Each operates on a track of 8-ft gage, at right angles to the service tracks and extending under the platforms. When being retracted, each bridge deck is lowered by power-driven jacks to clear the floors of the side platforms. Bridge motors and jack are remote-controlled from points on these platforms.

An unusual feature of this station is the placing of the columns of the rigid frames supporting the roof at one edge of each platform instead of at the center. Experience has shown that center columns greatly impede the movements of hand trucks.

Extension-cord outlets on the columns permit lights to be carried into the cars being loaded or unloaded. Telephone outlets on the platforms and a public-address system provide communication between the platforms and the office building at the north end of the station.

Airplane-hangar type doors across the track openings and doors at each of the 131 side delivery doors make it possible to close and heat the building during cold weather.

Siding and roofing are of corrugated asbestos. Skylights running the full length of the building above the platforms provide most of the light required for day-time operations.



RETRACTABLE BRIDGES at the ends of the platforms facilitate communication between platforms. The bridge section at the right has its deck lowered to permit its retraction during switching operations.

Steel shortage met on forest road

W. K. Merridith
Engineer, Rayonier, Inc.
Sappho, Wash.

As PART of its long range plans for a sustained yield program in the Olympic National Forest, the U. S. Forest Service, for the past decade, has been requiring the lumber companies to build access roads of a permanent nature. Heretofore, bridges on these roads were required to be of steel or reinforced concrete. This year, however, when Rayonier Inc., the wood-cellulose company that is cutting in the Calawa River valley, came to build a 120-ft span over the North Fork of the Calawa, enough steel could not be obtained and the Forest Service approved the substitution of a laminated timber bow-string truss.

For design purposes, the load was assumed to be two 20-ton trucks supporting a 75-ton donkey, and a single 20-ton truck loaded with 20,000 board feet of logs. To facilitate its operations, the company specified that there be no cross braces. This was met by using outrigger braces at each panel point. Deck beams are hung below the lower chord by four 1¾-in. bolts. This eliminates any eccentric loading on the lower chord.

• **Treatment**—Designs were made in the Portland office of Timber Structures Inc. The trusses were fabricated and assembled there, knocked down and shipped to Seattle for preservative treatment before being sent to the job. A 50-50 petroleum oil-creosote preservative was used, with an 8-lb retention specified. This is estimated to give the trusses a service life of 40 to 45 years.

For the design work, the allowable bending stress of 1,800 psi for solid timber was increased to 2,700 psi for laminated members. This was possible because of the maximum slope of the grain of 1:18 and the absence of knots or long checks in the laminated members.

In the field, the spans were assembled near the bridge site by the Rayonier bridge crew, using the guyed leads of their pile driver as a derrick. The haulback line was run into the woods to a block on a big stump as a snubbing line. Then the main line was attached to the upper chord of the truss on the forward end above what would be the center of gravity of the truss in upright position, while the snubbing line was attached to the back end, using two blocks on each line.

• **Erection**—The truss then was raised to upright position by two cranes and was "tight-lined" into placed by the pile-driver rigging. Two hand guy lines were snubber on stumps as a safety precaution.

Each truss weighed only 13½ tons and could be handled easily by this rig.

Deck beams also were assembled on shore and moved out onto the bridge with the tight-line rigging and swung into place for bolting.

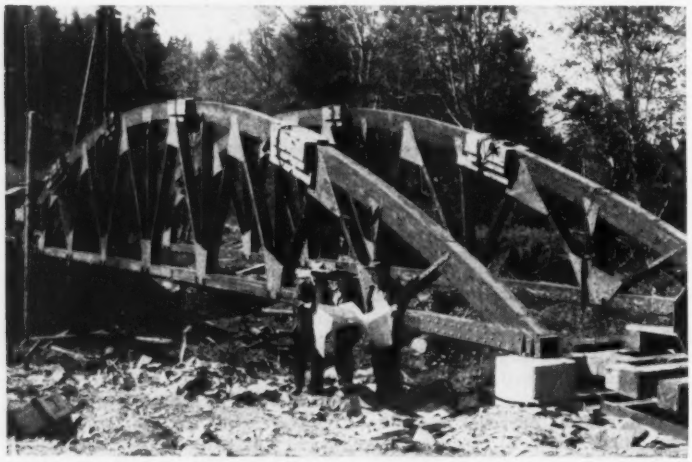
The same rigging was used to set the 2x12-in. laminated deck. Because of the complicated dowel pattern used on this deck, each run had to be carried the full 120-ft length across the span before the adjoining run was set.

A 3-in. thick mat of plant-mix asphalt completed the deck.

The roadway width is 14 ft. Principal dimensions are: top chord, 11x21⅛ in.; bottom chord 11x13 in.; deck beams, 11x34⅛ in.

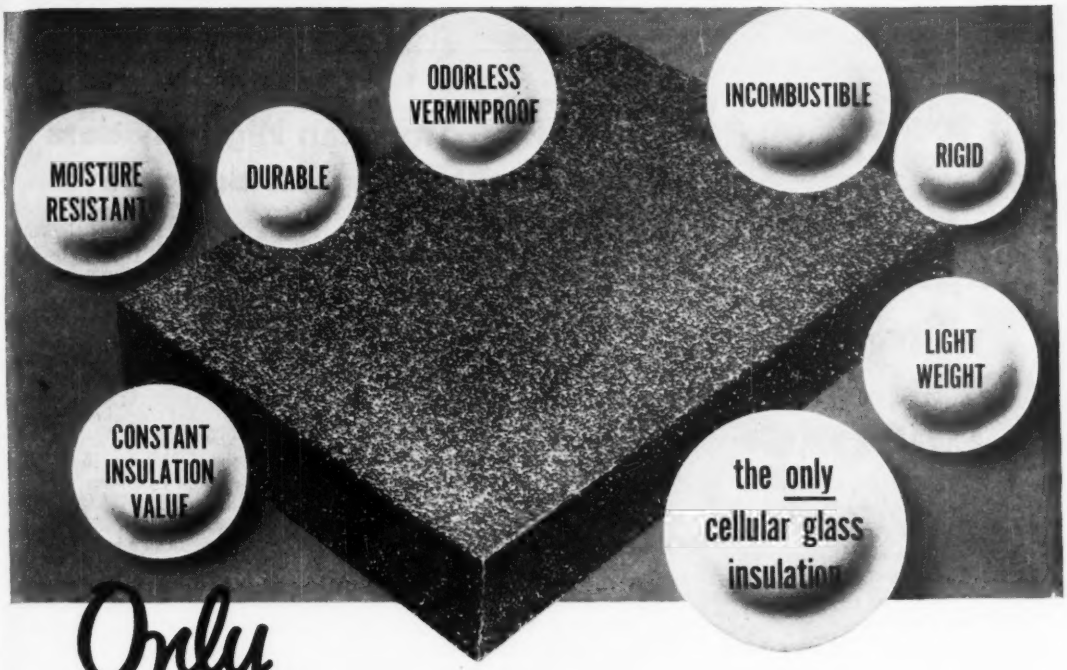
The end connection between the top and bottom chords is made up of steel plates that are welded to the bed plate at the outer end and to an inclined crossplate 2⅞-in. thick against which the top chord bears.

This work was done under the direction of District Ranger Sanford Floe, R. F. Cunningham, logging superintendent for Rayonier, and the author. Joe Meeley was construction superintendent and John Wasankari, pile driver foreman. Lloyd Baker represented Timber Structures Inc.



THE LAMINATED TIMBER TRUSSES were swung into place using the pile-driver leads as a derrick rig. The same rig placed the floorbeams and laminated plank floor. (Photo by A. H. Stoltz.)

KNEE BRACES were employed on the outside of the trusses to avoid use of cross bracing over the roadway, thus giving the lumber company an unlimited overhead clearance.



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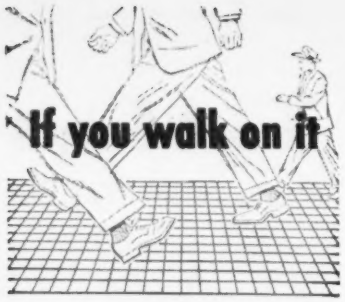

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Latest Pan-American Highway data given by road congress delegate

Consideration of the early completion of the Pan-American Highway was a principal theme of discussion at the recent fifth Pan-American highway congress at Lima, Peru.

Ralph A. Moyer, professor of civil engineering, University of California, Berkeley, and research engineer of the Institute of Transportation and Traffic Engineering, who was one of the 12 delegates from the United States, has made this report concerning that feature of the meeting:

"Recent reports indicate that the Pan-American Highway has a total route length of 15,450 miles, from the Mexican-United States border to Buenos Aires, including a few branches. All but 539 miles are now passable in good weather; of the impassable portion, 200 miles have not as yet been surveyed for a road. Most of the impassable mileage is in Guatemala, Costa Rica, and Panama, through very difficult terrain.

"That portion of the highway which lies in Peru follows the coast for more than 900 miles, has an asphaltic surface, and is of a standard of construction equivalent to the best to be found on our two-lane rural highways in the United States.

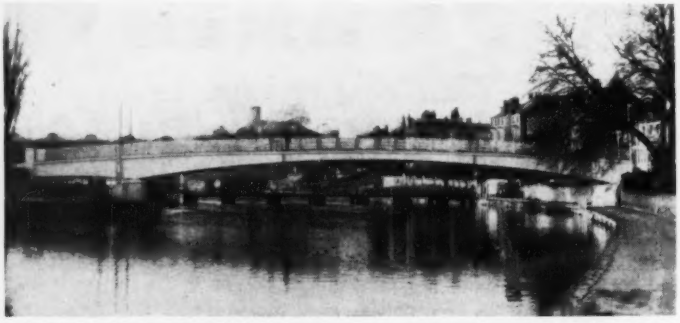
"To the east of Lima lies the Central Highway which crosses the Andes at an elevation of 15,867 ft. More than half of this highway is paved with concrete and asphalt and carries heavy traffic, 80 percent trucks.

• **"A unifying force**—Completion of the Pan-American Highway is regarded as something which would act as a unifying force for the 18 American republics that would be served by it. The completed highway should contribute greatly to the raising of living standards in various areas, thereby deterring the influence of communism. Economic and social advantages have already been realized in countries where substantial portions of the highway have been completed.

"Incidentally, it was reported that 30,000 tourists now enter Mexico each month as a result of highway development in that country."

• **Construction on Panama section**—The Panamanian Minister of Public Works has halted nearly all public works projects for 40 days in order that the government might have $200,000 on hand to meet its obligations at the present time to the Inter-American Highway construction fund.

(*Continued on page 48*)



PRESTRESSED FOOTBRIDGE—Longest span prestressed concrete bridge in the United Kingdom at present is a cantilever structure with main span of 150 ft over the River Severn at Shrewsbury. Known as the New Castle Bridge, it is 10 ft wide and 247 ft long. The center span contains a prestressed concrete hung span 60 ft long consisting of four channel-shape beams. The balanced cantilever spans consist of three rectangular beams each. Beams are 7 ft deep at piers, 2 ft 9 in. at the midpoint. Prestressing cables consist of twelve 0.2-in. dia wires each. There are ten cables in each of the outer cantilevers, 20 in the inner ones, and six in each suspended beam. Prestressing wires were anchored with Freyssinet cones. The bridge was designed and constructed by Taylor Woodrow Construction Ltd., with T. P. Bennett & Son as consulting architects, and L. G. Mouchel & Partners and Prestressed Concrete Co. Ltd. as consulting engineers.

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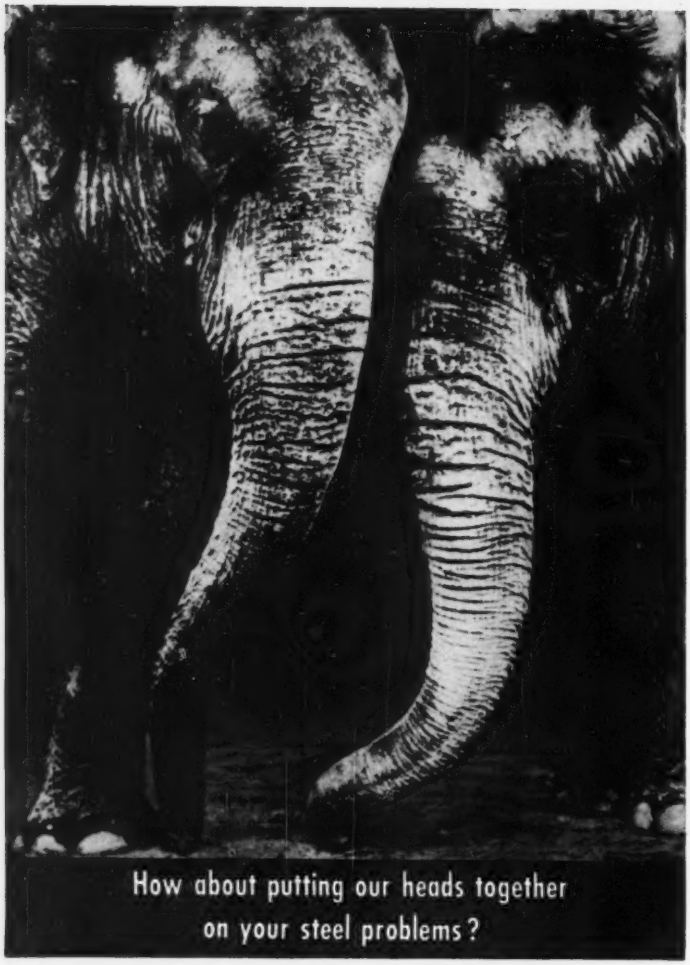

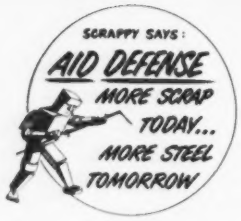

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International . . .

If Panama meets all its financial commitments to the construction fund an estimated $1,750,000 will be available for the Inter-American highway construction work in that country.

Uganda railway to extend into rich mineral area

Uganda, west of Kenya in British East Africa is about to start work on an $11 million railway extension that will aid development of important mineral deposits, forests and potential farmland. A government economic survey committee has reported favorably on the plan after considering its practical value. (ENR March 22, 1951, p. 36)

The plan calls for pushing the existing railway 200 miles westward from Kampala, near the north shore of Lake Victoria, into the neighborhood of the copper deposits at Kilembe. The railway would end at Lake George and open large areas of western Uganda now sparsely populated and underdeveloped.

Besides carrying ore from the mines, the route would bring large areas, with favorable rainfall and climate, into productive agriculture and supply new land for the growing African population.

Exploiters of the mines have estimated their production will be up to 5,000 tons of ore a day. The survey committee has urged that the ore be shipped by rail to Jinja near Kampala for refining. It believes that the new hydroelectric schemes on the Nile River would enable an electric smelting plant to deal economically with copper concentrates.

International briefs

• **Spanish tunnel**—Military authorities in Spain are pushing the construction of the Viella tunnel, the only missing link in the Pyrenees Highway connecting Port Bon on the Mediterranean with Fuenterrabia on the Atlantic. Meanwhile, construction of a drydock and armaments pier, to be completed next year, has started at the Cadiz navy base. The drydock will be able to take ships up to 30,000 tons displacement.

• **Floating dock**—The present docks at Palermo, Sicily, having proved inadequate to demands, the Societa Cantieri Navali Riuniti plans to build a floating dock at a cost of about $2,500,000 and is asking aid of 40 percent from the Italian government. The Ministry of Public Works has approved the grant.

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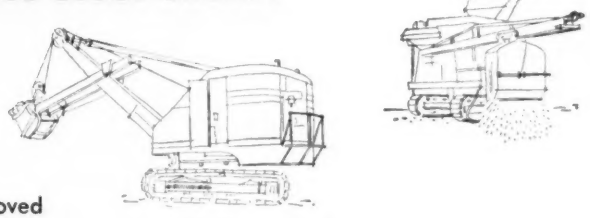

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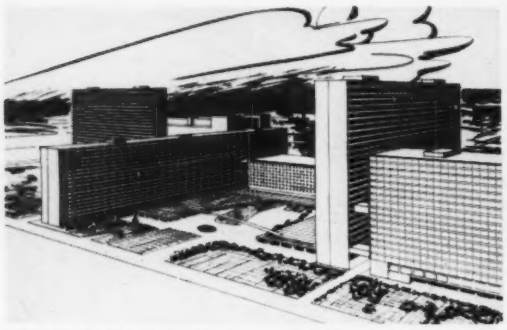
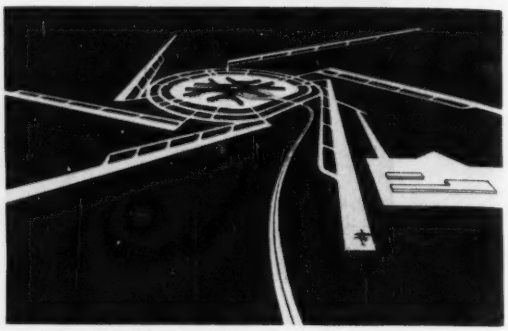
Chicago	Indianapolis	Minneapolis	Seattle
Cincinnati	Jacksonville	New York	Springfield
Cleveland	Kansas City	Philadelphia	Tulsa



A NEW CIVIC CENTER is needed in downtown Chicago to house governmental agencies now scattered in 80 buildings.



O'HARE AIRFIELD should be enlarged and improved to handle increasing passenger traffic; estimated cost, $53 million.

Chicago plans big for the next decade

CHICAGO GREETED THE NEW YEAR with the announcement of a practical, hard-headed program of public improvements during the next 10 years. All total, it would cost $1 billion 683 million, even at today's prices.

Prepared over the past 10 years by the City Plan Commission, the bold and far-sighted program is designed to alleviate or cure many of the Windy City's public works headaches.

Top-priority goals include: Improved mass transit by unification of surface lines and extensions to the subway system . . . relief from traffic congestion by improving streets, providing city-wide parking facilities, and constructing expressways, bridges and railroad grade separations . . . more efficient rail, water and air transportation by the construction of a new railway terminal, port and harbor improvements, and increasing airport facilities . . . upgrading the health and welfare of Chicago's citizens by more extensive water and sewage treatment, building more schools and parks, and redevelopment of blighted areas . . . and increasing governmental efficiency by providing a civic center site to house state, federal, county and city offices.

• **New financing needed**—Chicago must find new means of raising funds to finance such a huge public improvement program. It can be done, say the financial experts, but only if the major portion of the total costs are borne by the users; not the taxpayers.

This means self-liquidating financing—revenue bonds that are retired out of income from tolls on expressways, fees from parking and terminal facilities, and rents from agencies and concessions.

About 75% of the entire $1 billion 683 million program is of the type which has been demonstrated in other municipalities to be financible by the issuance of self-supporting revenue bonds; leaving 25% to be financed by the usual tax-supported bonds.

• **Public Authority proposed**—The Chicago Plan Commission proposes—as one practical method of insuring the workability of the program—the creation of a Public Service Authority to finance and operate self-liquidating projects. It would be governed by a board of unpaid citizens; have the power of eminent domain; and finance its work by issuing revenue bonds. These bonds would be the obligation only of the authority; not the city. It should, advises the Plan Commission, limit its operations to projects previously authorized by the City Council.

The first presentation of Chicago's 10-year master plan was made to the City Council and Mayor Martin H. Kennelly, who promptly asked his department heads concerned with developing Chicago to name representatives to study the plan.

Carl L. Gardner, secretary of the Chicago Plan Commission, made the presentation; showing pictorially and graphically how civic developments have been allowed to lag, and what must be done to correct them.

• **Obstacles to be overcome**—In outlining its 10-year improvement program, the Plan Commission pointed up several antiquated facilities and obstacles to be overcome. A few examples:

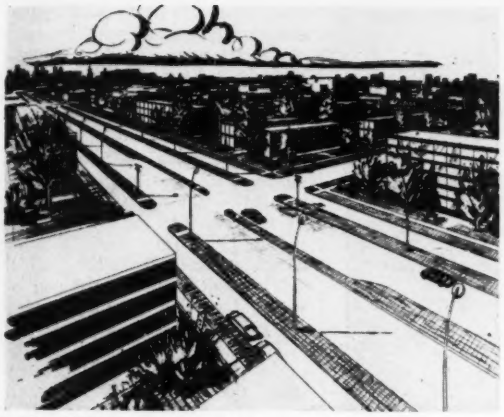
Chicago is still struggling with a system of streets laid out in the horse-and-buggy age . . . the noisy elevated railroad surrounding the Loop is an antiquated monstrosity . . . street traffic has increased 40% in the past four years . . . 125,150,000 railroad passengers annually must make connections in dilapidated terminals, some of which haven't been in their prime since the days of the pony express . . . 85% of the city's blight is located in the 40-sq mi Central Area (from Diversey Parkway on the north to 55th St. on the south, and from Lake Michigan to Western Ave. on the west), in which 1,000,000 Chicagoans live.

Industries are moving out of the Central Area at an accelerated rate due to: (1) the lack of adequate and readily-available vacant land for plant expansion and off-street parking; and (2) the throttling effect of traffic congestion together with the depressive and dangerous worker-environment.

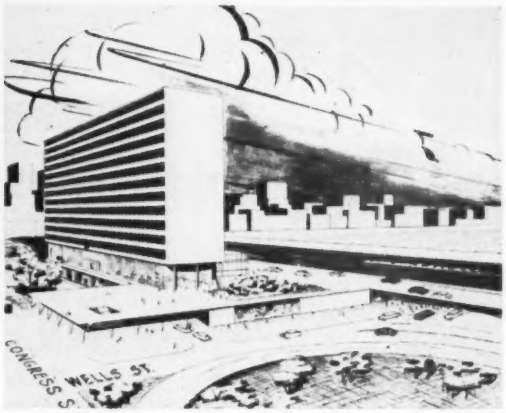
What the various public improvement will cost, as well as brief views of civic leaders on the necessity for securing them in an orderly fashion during the next decade are summed up as follows:

• **Expressways**—($416 million) "Chicago desperately needs a comprehensive system of highways," says V. E. Gunlock, commissioner, Department of Subways and Superhighways, "since it is the only answer to the need for greater capacity, high-speed efficiency and safety on the streets."

• **Ports and harbors**—($150 million) "The Calumet-Sag navigation project, located in the south Chicago metropolitan area, is the urgently needed final link to complete the Great Lakes to Gulf of Mexico inland waterway system," says Col. J. P. Campbell,



DOLLARWISE, the biggest item in Chicago's future plans is the $416 million system of expressways.



RAILROAD TERMINAL is a prime necessity; city's share of the $200 million project would be $75 million.

district engineer, Corps of Engineers, "and its construction cost is amply justified by direct savings in waterborne commerce."

• **Public parks**—($60 million) "The Chicago Park District has as its ultimate aim," says Superintendent Geo. T. Donoghue, "providing a park within ½-mile of every home in the city. To attain this worthwhile goal will take $60 million over the next 10 years."

• **Blighted areas**—($75 million) "The cost of redeveloping blighted areas is so high," according to John McKinlay, chairman, Chicago Land Clearance Commission, "that private industry can not attack the problem unaided. With redevelopment, a more stable tax base will be provided and new community life developed as foundation stones for a better city."

Although the Chicago Land Clearance Commission has a $26 million cash balance from state and city funds—plus potential federal grants of $40 to $50 million—an additional $75 million will be needed to carry out its 10-year program of redeveloping blighted areas.

• **Other public works**—Included in the Chicago Plan Commission's $1,683,000,000 plan of public improvements during the next 10 years are: $45 million for railroad grade separations . . . to reduce the huge economic loss due to traffic delays. A $50 million civic center site including underground parking for 3,000 automobiles . . . to house the operations of federal, state, county and the city's governmental agencies; now scattered in 80 buildings.

The Chicago Plan Commission's report also advocated $100 million for additions to the West Side Medical Center, and $80 million for the public school construction during the next 10 years.

• **Water supply and sewers**—($200 million) "Chicago, like other metropolitan cities, can not grow except for an adequate supply of pure and potable water," according to Oscar E. Hewitt, commissioner, Department of Public Works, "and without proper sewage disposal the health of everyone would be in constant danger."

A 950-mgd, $85,000,000 filtration plant is planned for construction just north of Navy Pier, to serve the central and north parts of Chicago. Bids for initial cofferdam construction were received in December 1951, but start of construction depends upon the availability of steel.

• **Rapid transit**—($100 million) "Complete unification of all public transit agencies is the only means of securing the most efficient, convenient and economic transit service," says Ralph Budd, chairman, Chicago Transit Authority. "This means bringing together under united management the Chicago Motor Coach Co., the suburban bus lines, and the suburban railroad operations. Street car and bus terminals also are needed for better service, under Jackson and Washington Blvds., in the Loop."

• **Subways**—($100 million) In addition to the 5-mile, $34,000,000 State Street subway, completed in 1943 (ENR Oct. 21, 1943, v. p. 599), and the Dearborn St. subway—in operation for the past year—it will take $100 million to complete the subways as planned.

Major units will include the west side extension of Dearborn St. subway under the Chicago River and down the middle of Congress St. expressway to the city limits. Also, a new subway under Lake St. and south under Clinton St. to Congress St.

Completion of the subway system and unification of public transit agencies will do more toward alleviating traffic congestion, says the Chicago Plan Commission, than any other single effort.

• **Street improvement**—($50 million) "Chicago's streets were not designed to carry present-day traffic volumes," declared Lloyd M. Johnson, commissioner, Department of Streets and Electricity, "and in order to do the job adequately we must spend $50 million for street improvements over the next 10 years."

• **Bridges**—($25 million) "In 10 years one-half of Chicago's bridges will be over 45 years old," warns Stephen J. Michuda, city bridge engineer, "and many must be replaced with either movable or fixed bridges. Present bridge-building funds are entirely inadequate, resulting in the need for at least $25 million to be obtained from other sources.

Over $10,600,000 worth of bridge construction and modernization is either underway or expected to be started this year, depending on the availability of steel needed for use on these projects.

• **City-wide parking**—($104 million) Both downtown parking and parking facilities in outlying areas must be greatly improved. Unless the city has adequate terminal parking facilities, it will lose much of the value of its expressways.

If traffic congestion persists in the

(*Continued on page 52*)

Hudson Builders' Material Co., Jersey City, N. J., save time and money moving bulk cement by using L.C.L. Air-Activated Containers mounted on La Crosse low bed trailers. Cement is *blown* from similar containers on railroad cars into trailer-mounted containers by compressed air . . . is automatically unloaded at plant same way. Each container holds 10 tons of bulk cement . . . is easily loaded in 10 minutes . . . unloaded in 6 minutes.

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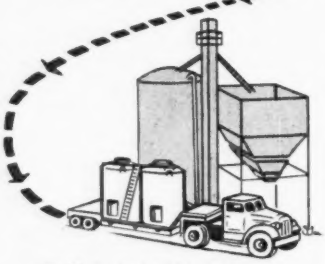

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Loop, there will be a crucial decline in downtown business, with drastic loss of tax revenues. The same thing applies—to a lesser degree—in outlying shopping areas, where better parking facilities are urgently needed.

• **Railway terminal**—($75 million) "For 40 years Chicago has been shackled with an outmoded system for bringing 13 railroads into the city," contends Joshua D'Esposito, railway terminal design authority, "with the result that development of much of the area south of the Loop has remained stagnant, and virtually closed to traffic."

The most urgently needed project in this program is the readjustment of south side terminal facilities and a new railway station, proposed in the vicinity of Congress and Wells Streets. Such an undertaking is estimated by the Plan Commission to cost $200 million; of which the railroad's share would be $125 million. The remaining $75 million will be needed for city construction of non-railroad facilities, part of the project.

• **Airport facilities**—($53 million) "This amount is needed for the development of O'Hare Airport, northwest of the city," says Ralph H. Burke, airport consultant for Chicago, "and the development must proceed now." The reasons:

"Airport traffic to and from Chicago is suffering because of inadequate facilities; Midway Airport, on the south side of the city, cannot be expanded; thus, O'Hare must be established quickly as the principal passenger airport."

Dallas to vote on bonds at Jan. 29 election

On Jan. 29 the voters of Dallas, Tex., will be asked to approve a $19,185,000 bond fund program, City Manager C. C. Ford says.

The 1-year program represents a substantial reduction from the 2-year, $67,000,000 program suggested last summer by the city's improvements review board. Here is a proposed breakdown on the bonds.

Waterworks improvements, $6,890,000; sanitary sewer improvements, $4,415,000; street paving, $2,280,000; right of way (for streets), $1,210,000; storm sewers, $3,125,000; traffic signals, $100,000; garage and maintenance yards, $625,000.

If the voters approve, the city plans to sell the first bonds for the program around April 1.

Of the water bonds, $1,014,000 will be for Dallas' participation with the United States Army Engineers in the construction of the Grapevine and Garza-Little Elm dams and reservoirs on the Trinity River.

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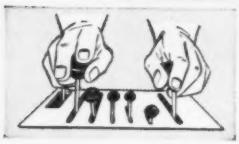
Speed-o-Matic full hydraulic controls mean stepped-up production



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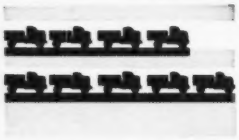

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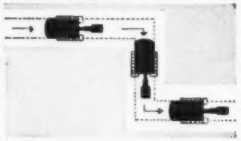

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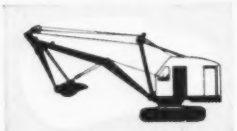

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Concrete slabs and blocks successfully tested

Testing to destruction has begun at the Southwest Research Institute, San Antonio, Tex., on a scale model of what is said to be the first prestressed flat concrete slab of its kind in this country.

The full-scale slab will be used in the erection of a large laboratory building with the Youtz-Slick lift slab method developed by the affiliated Institute of Inventive Research (ENR June 29, '50, p. 38).

The testing is being directed by Fred Koebel, research engineer, who also designed and supervised construction of the one-sixth scale model. Results will be used in construction of the actual full-scale slab which, serving as a roof for a new laboratory building, will be 88 by 38 ft and half a foot thick. It will be supported on eight columns with 24 ft centers.

Mr. Koebel says that it is possible that by prestressing the steel in these slabs more than half of the steel and perhaps 40 percent of the concrete can be saved, with strength equal to that of conventional construction.

• **Durability of concrete blocks**—Concrete masonry products makers in northern Ohio were given a progress report recently by the Toledo University Research Foundation on the project of ascertaining the durability of concrete blocks. The research has been under way for the last 18 months under supervision of J. K. Selden, and financed mostly by federal funds.

One definite conclusion, the research has found, is that concrete blocks should be thoroughly dried before being used as wall material. Research has proved that moisture in the blocks continues to react chemically, causing cracks and shrinkage.

New chemical formula for rain-making found

John Battle, of Beaumont, Calif., meteorologist for the San Diego County Weather Corp. and the Santa Ana River Weather Corp. in southern California, reports that he has experimented successfully with a new combination of chemicals which has proved more effective than those now used in cloud seeding work. He has devised a new formula in which he mixes ammonia gas with silver iodide. This formula has been used in airplane cloud seeding over the San Bernardino Mountains and proved 1,000 times more effective as a nucleating agent, Battle said.

He cautioned that this statement does not mean that rainfall will increase 1,000 times, but that it does mean precipitation may be obtained from some cloud formations which previously have not been considered suitable for rain-making operations.

The meteorologist said he expects to introduce the new formula for use with ground generators later in the season. He told the weather corporation directors results thus far are inconclusive but he expects to complete a first tabulation in about 90 days.

The insulating value of cavity walls tested

In order to determine the insulating value of a cavity wall compared with that of a solid wall, and to ascertain to what degree the ventilation of the wall with outdoor air might affect its insulating value, a number of heat transfer investigations have been made by the Building Technology Division of the National Bureau of Standards.

The air space in such construction prevents penetration to the inner face of rain or water that may leak through joints and minute cracks in the outer face. The air space also breaks the continuity of the masonry, which has relatively low resistance to heat flow, and adds considerably to the thermal insulating value of the wall.

Water penetrating the outer wythe of a cavity wall seeps down its inner face and, by means of flashings set in the wall during construction, is diverted outward through weep-holes or occasional open vertical joints between bricks in the outer face. Such flashings and weep-holes are provided at the bottom of the cavity above grade, and over windows and other openings. The weep-holes constitute openings into the cavity at different levels through which outdoor air can circulate.

The heat transfer measurements were made in the NBS vertical guarded hot-box heat-transfer apparatus on three different specimen walls 8 ft high and 5 ft wide. One face of the wall is exposed to air at about 70 deg F, and the other face to air at about zero. By special equipment on the warm side, the heat flow through a centrally-located area of the wall is determined. Temperatures of the air

(Continued on next page)

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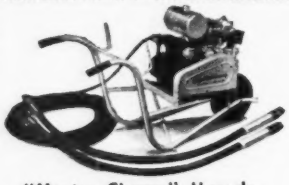

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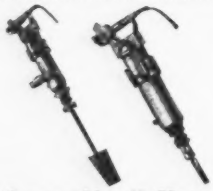

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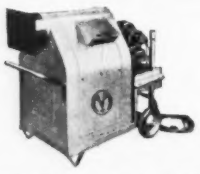

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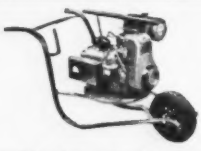

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and wall surfaces are observed, thus making possible calculation of the heat transfer coefficients of the wall.

Under this test the heat loss coefficient of a sealed brick cavity wall was only 70 percent of that of the solid wall with the same amount of material. The small amounts of ventilation that took place in some tests increased the cavity wall heat loss only moderately to respective values of 75 and 77 percent of that of the solid wall. The heat loss coefficients for the brick-tile cavity wall was about 73, 75, and 78 percent of that of the corresponding solid wall.

New research report on atmospheric pollution

Contributions of wind tunnel model research to the solution of atmospheric pollution problems are discussed in a 4-page folder on "The Development of Prototype Model Research on Atmospheric Pollution Problems," available for 10 cents from V. W. Palen, N. Y. University College of Engineering, New York 53, N. Y.

The material was prepared by Associate Prof. Gordon H. Strom, aeronautical engineering department, and Associate Prof. Wm. T. Ingram of the civil engineering department. It includes analysis of wind tunnel requirements for simultation of meteorological phenomena affecting atmospheric pollution.

Gravel made from waste

Two Cornell University professors have developed a process for producing synthetic gravel partly from mud. Benjamin K. Hough and Julian C. Smith of the engineering department said they make their synthetic gravel from mud, inexpensive chemicals and sulfite liquor, a waste product of the paper industry. It should be helpful in road building and other construction, particularly where gravel is scarce, they said.

Materials are mixed and fused by machine into the shape of large dog biscuits. These, in turn, may be broken up to resemble finer crushed rock.

Tests have shown that the "gravel" withstands submersion in water for six months without disintegrating. Other pieces have withstood freezing, thawing, and drops from a three-story height.

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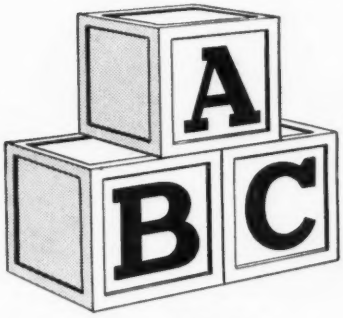
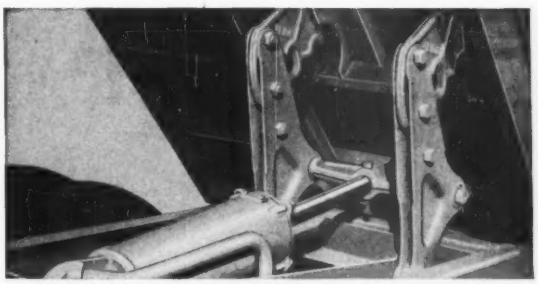
And that's easy to understand . . . for Galion successfully unites an exclusive Fulcrumatic lift ACTION with perfect operating BALANCE and top quality CONSTRUCTION resulting in dump truck performance so smooth . . . so reliable . . . so efficient as to earn for it the stamp of leadership . . . "User Preferred".





Scientifically positioned fulcrums and transfer linkages automatically "shift" the load at different points, eliminating lift-shock and smoothing out lifting action throughout the dumping cycle. The result is longer hoist, body and chassis life . . . better dumping performance!

MAKES A WHALE OF A DIFFERENCE THE "WEIGH" IT LIFTS

Sales and Service FROM Coast to Coast

GALION

ALLSTEEL BODY COMPANY

GALION, OHIO

A exclusive hoist *Action*

B perfect operating *Balance*

C proved quality *Construction*

On the New Jersey Turnpike

...MONOTUBES

for simplified, speedy foundation work

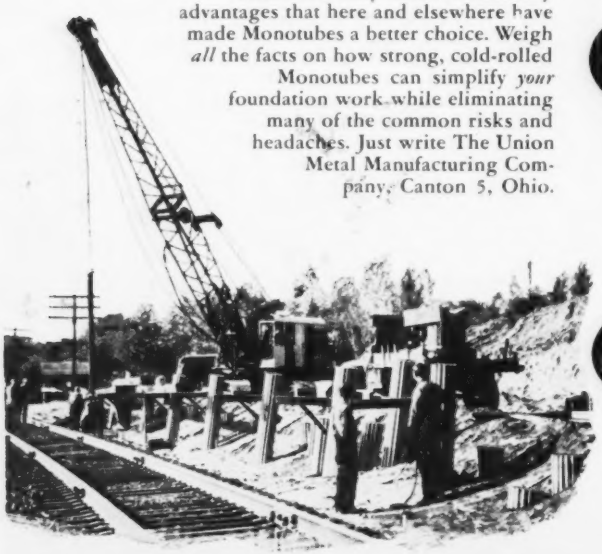
THESE and many other overpasses play a vital part in making the New Jersey Turnpike a "Miracle Highway". And, versatile Monotube piles went into *all* types of overpass construction—because they offer unique advantages.

For example, speedy construction was possible with light weight Monotubes, installed with fast, mobile driving equipment. There was minimum time loss in moving between the widely separated structures. *On* the job, Monotubes saved still more time and money due to their ready extendibility, simplified field splicing, easy cut-off and minimum waste . . . and, due again to their light weight that speeded locating and driving to any required depth.

These are only a few of the key advantages that here and elsewhere have made Monotubes a better choice. Weigh *all* the facts on how strong, cold-rolled Monotubes can simplify *your* foundation work while eliminating many of the common risks and headaches. Just write The Union Metal Manufacturing Company, Canton 5, Ohio.

OVER RAILROADS

OVER WATER



OVER HIGHWAYS

UNION METAL

Monotube Foundation Piles

NEW VICE-PRESIDENTS—C. W. Wolfe, right, and Karl C. Sippel have been elected vice-presidents of The Austin Company. Wolfe who is a Bachelor of Science from Western Reserve University, has also been named manager of the Cleveland district, embracing Ohio, western New York and Pennsylvania, central and northern Indiana and nine southern states. Sippel studied engineering at Oklahoma A&M college. Starting as a laborer, he has worked his way up steadily through increasingly important jobs with the Austin organization.

Col. Weinert, to be deputy on military construction

To handle better the larger military construction programs being assigned to the Corps of Engineers during the current emergency, the military construction functions and organization have been regrouped and consolidated, Lieut. Gen. Lewis A. Pick, Chief of Engineers, has announced.

Working under Brig. Gen. John R. Hardin, assistant chief of engineers for military construction, Col. McDonald D. Weinert will serve as deputy chief of military construction, a newly created post.

Colonel Weinert was formerly chief of the engineering division, which has been merged with the construction operations division into one office, designated as the Military Construction Divisions.

Col. William J. Ely, former chief of construction operations, will head the new divisions.

Top officials advanced by Dominion Bridge Co.

The new president of Dominion Bridge Co., Montreal, Canada, W. Taylor-Bailey, who succeeded the late W. F. Angus, has announced the appointment of three vice-presidents, including R. S. Eadie, formerly chief engineer, eastern division, who has named D. B. Armstrong, chief engineer. Mr. Armstrong's former position of assistant chief engineer is

(Continued on next page)

CHIEF ENGINEER—Walter Dreyer has been appointed vice-president and chief engineer of the Pacific Gas and Electric Co., succeeding I. C. Steele, retired. Dreyer received his B.S. degree in civil engineering at the University of California in 1916. The same year he joined PG&E as a surveyor. In 1920 he became assistant engineer in charge of structural and hydraulic design. In 1929 he was made assistant chief of the division of civil engineering and in 1944 became chief.

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drawing pencil of the Masters

EXCLUSIVE, Yes!

191 years of priceless experience go into the making of the world's finest drawing pencil.

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Ordinary drawing pencils and refill lead have gone up so much in price that CASTELL stands out as an extraordinary value. Now you can use the premium pencil—the world's best—at no extra cost. Order from your Dealer today.

Sharper, clearer and more blueprints from CASTELL tracings.

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A.W.FABER CASTELL LOCKTITE U.S.A. 2H
CASTELL DRAWING RETOUCHING REFILL LEAD
IMPORTED FROM AMERICAN ZONE
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The original push button holder with bulldog lead grip.

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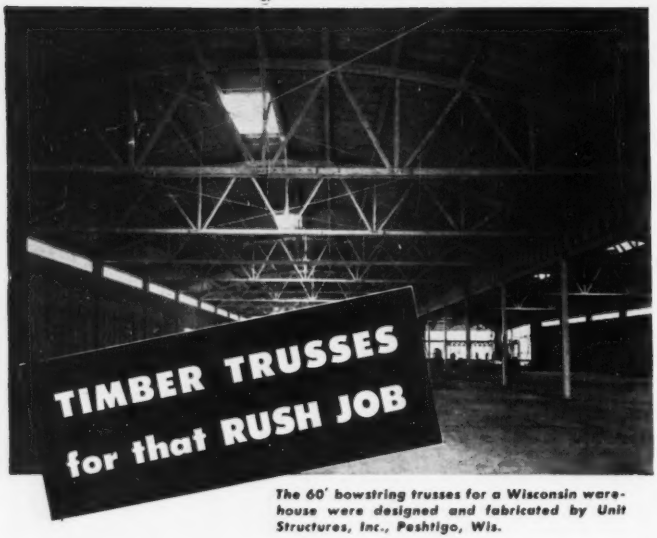

The 60' bowstring trusses for a Wisconsin warehouse were designed and fabricated by Unit Structures, Inc., Peshtigo, Wis.

Now in these emergency times timber construction is going ahead on early delivery schedules.

The widespread recognition of timber as an engineering material has given the building industry a new tool in this easily worked, versatile material.

Hangars and garages are being built with timber. So are warehouses, factories and other large structures. Heavy timber construction buildings, equipped completely with approved sprinkler protection, have shown a remarkable record of fire safety over many years.

The building profession now knows that, pound for pound, timber does as much work as other materials, and in its proper fields of use performs an equally satisfactory service, and generally at lower cost.

Timber fabricators in all sections of the country are ready to help you.

Specify timber — there's plenty of it and ready as usual for early delivery.

TIMBER ENGINEERING COMPANY, 1319 18th St., N.W., Washington 6, D. C.

Please send me FREE copy of "Pictorial Review of Hangar Fire Tests."

We plan to build a_____

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ENR

Men and Jobs . . .

filled by R. M. Robertson, and P. G. A. Brault takes Mr. Robertson's former job of designing engineer. The Ontario division's manager, G. P. Wilbur, becomes a vice president as does the manager of the Pacific division A. S. Gentles. All the men are civil engineers.

ALUMNUS HONORED—David Tishman, chairman of the board of the Tishman Realty and Construction Co., has been honored by having a classroom dedicated in his name at the new $5 million Law Center of N. Y. University. A member of the class of 1909, Mr. Tishman, left, was honorary chairman of the building drive committee. He is shown with Dean Russell D. Niles.

Geo. H. Stiles, who has spent 35 years designing or directing the designs of shore facilities for the Navy, has retired. He is a graduate of Dartmouth College, and retired as deputy manager of the Fleet and Industrial Facilities branch of the Navy's Bureau of Yards and Docks.

A. H. Krause is now assistant chief engineer of the Rust Engineering Co., Pittsburgh, Pa.

Ford W. Harris has been appointed chief engineer of the Central Maine Power Co., Augusta.

Herschell F. Smuggs, administrative assistant to the city manager of Portsmouth, O., has become acting city manager of Highland Park, Ill.

J. L. Dickson, engineer-manager of the San Antonio, Tex., Urban Expressway, has been named director of public works there. He was appointed

(Continued on page 63)

The only question is "when?"

Sooner or later the man looking for a better truck buys an International.

Then he wonders why he didn't do it sooner. He gets better performance, he cuts costs, he makes more money.

If that's what you want, the only question is "when?"—when are you going to see your International Truck Dealer or Branch and get all the facts about the new International Truck that is engineered to do your job better, at lower cost?

INTERNATIONAL HARVESTER COMPANY • CHICAGO

Only Internationals give you—

- All-truck engines designed exclusively for truck work, developed and built in the world's largest exclusive truck engine plant.
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- Super-steering system—more positive steering control with easier handling and 37° turning circle for greater maneuverability.
- The traditional toughness of trucks which have been first in heavy-duty truck sales for 19 straight years.
- The world's most complete line of trucks . . . 115 basic models, from ½-ton pickups to 90,000 lb. GVW off-highway models.
- Service by nation's largest exclusive truck service organization.

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INTERNATIONAL TRUCKS

More than One Million Now on the Road

Model LF-194, 145 inch wheelbase, 9x7ft. dump body, 38,000 lbs. GVW.

CHEAPER

STONE SPREADING!

Two of S. J. Groves Adnun Pavers spreading stone on the New Jersey Turnpike.

ADNUNS are cutting the cost of stone spreading! In comparison with the tail gate and blade method, Adnuns are spreading twice as much stone in a given period of time. They are saving stone because of more accurate spreading with a minimum of spotting. They reduce the crew by half and free the grader for other work.

The Adnun gives you positive traction on all wheels whether turning or going straight ahead. There is no loss of power in handling the truck on curves as there is with clutching and declutching in steering crawlers.

Compare the Adnun with lighter, cheaper units. The Adnun is heavily built and capable of handling the heavy loads of the courser grade stone without fear of constant breakdown. The Rubber Tired Stone Spreading Attachment gives full traction and saves your rollers for black top. The Overlapping Cutter Bar carries the aggregate up to, and compacts it with the parallel course, and the Power Cut-Off permits carrying hopper loads across intersections without tag-end run outs. The Adnun has been proved on all classes of material spreading and is the only Black Top Paver unreservedly recommended for spreading both aggregates and black top. Don't buy a one-purpose or substandard machine.

The Indianapolis Speedway. Here is pavement that takes the fastest traffic known—Adnun laid 15 years ago. This is only one example of the many miles of pavement laid up to 17 years ago and still in service. Ask for the booklet, Roads That Last!

THE FOOTE COMPANY, INC.
Subsidiary of Blaw-Knox Co.
1922 State St. Nunda, New York

ADNUN
TRADE MARK REGISTERED

BLACK TOP PAVER

Men and Jobs . . .

by **C. A. Harrell**, new city manager, who came from Norfolk, Va.

Dean R. Sever has been appointed engineer for Ohio highway division 11 at New Philadelphia. He succeeds Dawson W. Smith who was relieved last October after a stretch of highway broke down a few minutes after it was opened (ENR Oct. 4, '51, p. 26).

Col. R. K. McDonough has been assigned executive officer and assistant to the division engineer of the South Atlantic division at Atlanta, Ga.

R. D. Maxson, engineering vice-president of the Public Service Co. of Northern Illinois, has been elected a vice-president of the Commonwealth Edison Co., Chicago, and will direct engineering for both companies.

J. Donald Rollins has been appointed assistant vice-president, engineering, U. S. Steel Co. He has been project manager at the Fairless Works, Morrisville, Pa.

Jewell R. Benson has been made special projects engineer for the Asphalt Institute to promote the use of asphalt for the U. S. reclamation program and other special purposes.

W. G. Milhausen has been named regional construction engineer of the Canadian Department of Defense Production at Winnipeg, Man.

Albert Deschamps, Montreal engineer and contractor, has been appointed to supervise Canada's interests in defense construction in Europe.

Three members of the Seattle, Wash., city engineering department retired Dec. 31 with a total of 136 years of department service. **Robert J. Flynn** started in 1902 as a chairman, has been assistant engineer since 1939. **E. F. Hughes** started as a computer in 1909, has served principally as a right-of-way engineer. **B. D. Keeney** also began as a computer in 1909, had been senior engineer since 1946.

John W. Schreiber, 42 years with the Aluminum Company of America, retired Jan. 1 as the company's chief construction engineer.

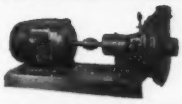
Joseph F. Frein, formerly assistant chief engineer, has been promoted to chief engineer of Morrison-Knudsen Co., Inc.

GOOD PUMPS *for good buildings*

YEOMANS!

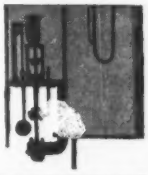
For all basic pumping functions in a building there are Yeomans Pumps that will give long years of quiet dependable performance.

WATER SUPPLY — Since 1898 Yeomans has been solving problems of water supply and circulation in buildings of every kind. Many thousands of successful installations emphasize the soundness of Yeomans Engineering.

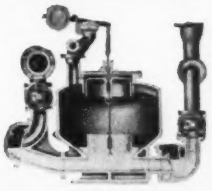


CONDENSATION RETURN — Compact design and sound engineering are conspicuous features of Yeomans Pumps in heating systems. They can be depended upon for efficient performance, long life and a minimum of maintenance.

DRAINAGE DISPOSAL — For an end to troubles, install Yeomans Pumps for getting rid of drainage and seepage: Yeomans Heavy Duty Bilge Pump for liquids free from solids, and Yeomans Screenless Ejector for wastes containing solids.



SEWAGE EJECTION — Acknowledged throughout the world as approaching perfection, the trusty Shone* Pneumatic Sewage Ejector is ideal—wherever gallonage is limited and solids are not. Yeomans also builds centrifugal sewage pumps for both wet pit and dry pit installations—in sizes up to 14 inches and capacities up to 24,000 gpm.



Full information concerning Yeomans Pumps, with useful engineering data and installation drawings, is published in Sweet's Architectural and Engineering Files; and also in separate bulletins for your Data File—sent promptly on request. Use the coupon

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PUMPS FOR BUILDINGS, MUNICIPALITIES, INDUSTRIAL APPLICATIONS—
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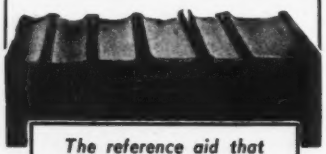

The reference aid that helps you solve your toughest construction problems

With the construction work that lies ahead for every engineer, it is only up to you to assure yourself of superior workmanship—ensure your work of the finest structural qualities—by providing yourself with this revision of the famous Hool and Kinne Library—the books which for years have been providing structural engineers with the facts they need on every problem concerned with the design and construction of civil engineering structures.

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Structural Engineers' Handbook Library

Revised by R. R. ZIPPRODT,

And prepared by a staff of sixty-three well-known engineers, each a specialist in his field.

6 volumes; 3763 pages; 2719 illustrations; 63 contributors

Each one of these six volumes is a complete reference in itself on some aspect of structural engineering. The library

▶**COVERS** the how and why of foundation and substructure design and construction, the general theory of structural members, the detailed design of such members and the design of their connection with other members.

▶**EXPLAINS** the principles of statics, reactions, moments and shears in beams and trusses, influence lines, methods of computing stresses in lateral trusses and portal bracing.

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This offer applies to U. S. only.

Local flood damage must be studied N.Y.-N.E. Inter Agency group learns

Besides analyzing general flood characteristics of a basin, it is important to study local flood problems in damage centers, the New York-New England Inter-Agency Committee learned at the agency's meeting Jan. 14 and 15 at Providence, R. I. This group of federal agencies is under direction of the Corps of Engineers.

Elliot Childs, flood and hydraulic engineer of the Corps, told a study and report group that man-made construction or natural encroachments in river channels often produce serious obstacles to flood flows.

Bridges, Childs said, often are constructed with inadequate waterways under them or with piers placed counter to the natural stream flow. Utility pipes are often suspended through bridge openings, producing debris traps. Dams are sometimes built with insufficient spillway capacity. Because it often is impractical to design a channel improvement for any prescribed design discharge because of industrial and highway development in the area, specific improvements have to be attempted, Childs added.

He said this was particularly true of the Blackstone Valley where another engineer, Herman J. Kropper, said a $1,000,000 control project had already been authorized by Congress. The program calls for construction of a diversion tunnel at Worcester, Mass., channel improvement and movable dam construction at Woonsocket, R. I., a dike at Pawtucket, R. I., and a flood control reservoir at West Hill, Mass.

Although the Blackstone's most serious flood in 1936 caused $400,000 damage to Woonsocket alone, that damage would be at least $1,000,000 today.

At a later session Walter J. Shea, chief of the Rhode Island Division of Sanitary Engineering, said a federal appropriation of $1,250,000 for the Navy's share of pollution abatement at Newport would shortly make Rhode Island the only state with no major area in which pollution control has not already begun.

Mason contractors to hear about current problems

Hundreds of mason contractors from all over the country will assemble at the Palmer House in Chicago on Feb. 24 to learn some of the answers to current construction problems.

The occasion will be the combined convention and show of the Mason Contractors' Association of America.

The two main objectives of the meeting will be to acquaint mason contractors with recent governmental regulations and construction controls; and to focus attention on daily operating costs, and the supply of critical materials.

Speakers will include: Edward P. Morgan, director of enforcement, Office of Price Stabilization; Douglas Whitlock, general counsel, Structural Clay Products Institute; Harvey C. Bates, president, Bricklayers, Masons and Plasterers International Union; Robert Taylor, research director, Structural Clay Products Research Foundation; E. G. Gavin, editor, "American Builder Magazine," and S. H. Westly, assistant manager, Housing and Cement Products Bureau of the Portland Cement Association.

Go ahead with essentials, waterworks group is told

Gerald E. Arnold, director of the Water Resources Division in the National Production Authority, told the New York Section of the American Water Works Association Jan. 15 to go ahead with plans for construction projects it considers essential. File materials requests now for all work planned for any time in '52, he advised.

He warned against applying for non-essentials and padding requirements, pointing out that his division—claimant agency for water and waste works—has been averaging 30% denials on requests to date.

Only 158,000 tons of steel were allocated to the division for the first quarter of '52, but urgent requests have helped to get an allocation of 220,000 tons for the second quarter.

• **Period of transition**—Willard T. Chevalier, executive vice-president of the McGraw-Hill Publishing Co., described the 1950-53 years as a period of transition, rather than emergency—a bridge to restoration of a continuing civilian economy. Right now we are in an "arsenal economy," he said, and whether we come through it to

(*Continued on page 67*)

CLYDE WHIRLETTE

"the answer to our prayers!"

The erecting of steel for a fifth and sixth floor addition to an existing structure presented a difficult problem due to load limits on the roof. A Model W-3 Whirlette was recommended for mounting on a carriage which could be railed over the existing structure on the steel permanently placed for the beginning of the fifth and sixth floor additions. This accomplished weight distribution well within the load limits and made it possible for the contractor to permanently position beams weighing approximately 3,100 pounds.

Two new, Whirlettes

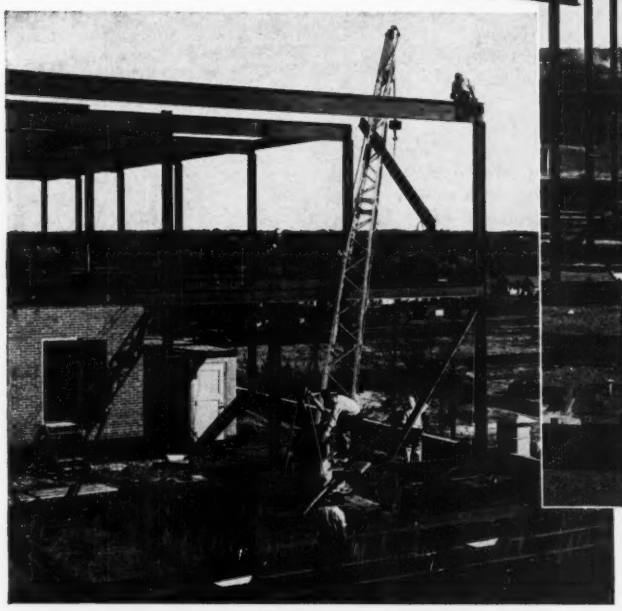
Model W-3 with double drum hoist, with or without power. 10,000 lbs. capacity. Maximum boom length 40 feet.

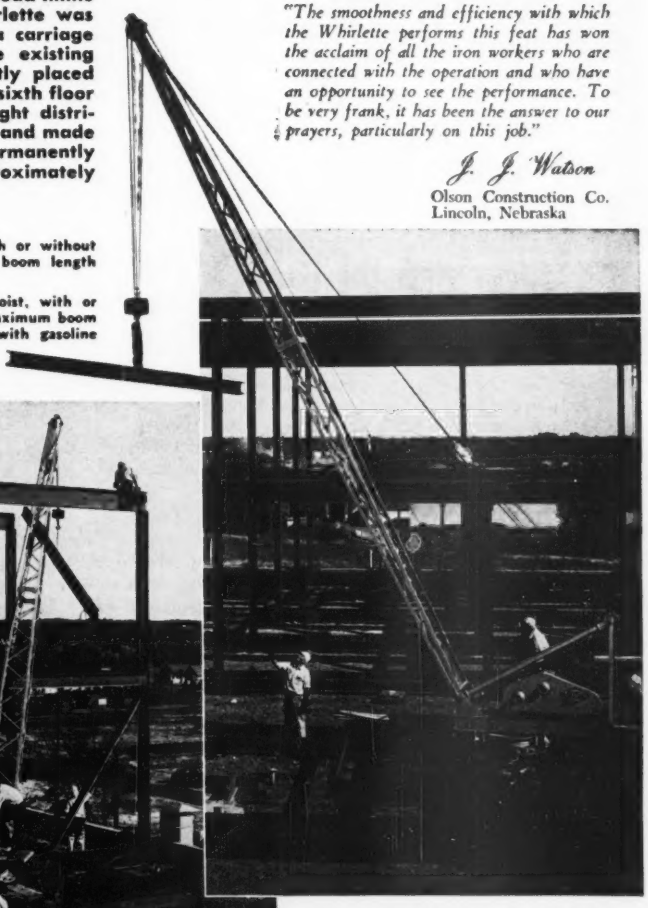
Model W-45 with two or three drum hoist, with or without swinger. 24,000 lbs. capacity. Maximum boom length, 60 feet. Either model available with gasoline or electric power.

. . . the contractor says--

"The smoothness and efficiency with which the Whirlette performs this feat has won the acclaim of all the iron workers who are connected with the operation and who have an opportunity to see the performance. To be very frank, it has been the answer to our prayers, particularly on this job."

J. J. Watson
Olson Construction Co.
Lincoln, Nebraska





Here the W-3 Whirlette sets steel for the fifth and sixth floors. The simplified controls on the Whirlette's hoist permits precision control for setting steel. The turntable has integral bull gear and center pin and a machined double taper roller path which permits full 360° swing.

WHIRLEYS • DERRICKS • HOISTS • BUILDERS TOWERS • CAR PULLERS • HANDI-CRANES • ROLLERS

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SUPERIOR *Cone-Fast* COIL TIES

YOU CAN CUT YOUR FORM COSTS!

Because the cost of form work is a prime factor in the total cost of bridge piers and abutments, retaining walls, filtration and sewage disposal plants, and other engineering projects, it is obvious that the forming phase offers the greatest opportunity to save material and reduce labor costs.

The use of Superior Cone-Fast Coil Ties is one direct means of cutting costs and here's why: The *exclusive* feature of this tie is the extension of the coil beyond the ends of the wire struts (enlarged detail above) which allows a reamed Coil Cone to be fitted snugly in place before the opposing panel is erected. No separate gadgets are required. Cone-Fast ties are practically a "must" when large panels are used on walls where the workman cannot get inside the forms. Cone pointed Coil Bolts are easy to engage because of the large square openings in the cones. Bolt Holders (shown on panel form) keep bolts and washer on panel when stripping and moving for reuse.

Cone-Fast Coil Ties are available for Coil Bolts ½" to 1¼" in diameter and can be used with all types of forms. All working parts are returnable. For maximum efficiency plan your form work with SUPERIOR Cone-Fast Coil Ties.

REQUEST a copy of our 56-page catalog. It contains a valuable table for spacing studs, wales, and form ties.

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a period of peace and world leadership is chiefly dependent upon morale.

The section's special committee on water resources capped four months' study with a recommendation that if New York City decides in favor of it, New York State should pass enabling legislation at this session for an interstate authority to implement the Incodel Plan for the Delaware Basin.

Michigan Upper Peninsula General Contractors Association has elected the following officers: President, Herman Gundlach, Herman Gundlach, Inc., Houghton; vice-president, Robert Joyner, Champion, Inc., Iron Mountain; secretary, William H. Shea, Herman Gundlach, Inc., Houghton; treasurer, Neil Gill, Edward H. Meyer Co., Neenah, Wis. New directors: Harold, MacDonald Kaake Co., Marquette; and Elmer Wirman, Prokech Construction Co., Iron River; incumbent directors, P. J. Nichols, Ironwood; George Kaysner, Sault Ste Marie; Erling Arntzen, Escanaba; and William Shea, Houghton.

CALENDAR

Association of Asphalt Paving Technologists, Netherland Plaza Hotel, Cincinnati, Ohio, Jan. 28-30.

American Society for Metals, William Penn Hotel, Pittsburgh, Pa., Jan. 31-Feb. 1.

California Conference on Street and Highway Problems, University of California, Los Angeles, Feb. 6-8.

National Council of Private Motor Truck Owners, convention, Hotel Statler, Washington, D. C., Feb. 7-8.

National Sand and Gravel Association, and National Ready Mixed Concrete Association, convention and exposition, Conrad Hilton Hotel, Chicago, Ill., week of Feb. 11.

National Council for Steam Improvement, Waldorf-Astoria Hotel, N. Y. City, Feb. 18-21.

Illinois annual conference on Highway Engineering, Urbana, Feb. 19-21.

N. Y. State County Highway Superintendents Association, DeWitt Clinton Hotel, Albany, Feb. 20-22.

Mason Contractors' Association, convention, Palmer House, Chicago, Ill., Feb. 24-27.

Associated General Contractors of America, Statler Hotel, Detroit, Feb. 25-28.

Materials Handling Conference, Purdue University, LaFayette, Ind., Feb. 25-26.

American Concrete Institute, Netherland Plaza Hotel, Cincinnati, Ohio, Feb. 26-28.

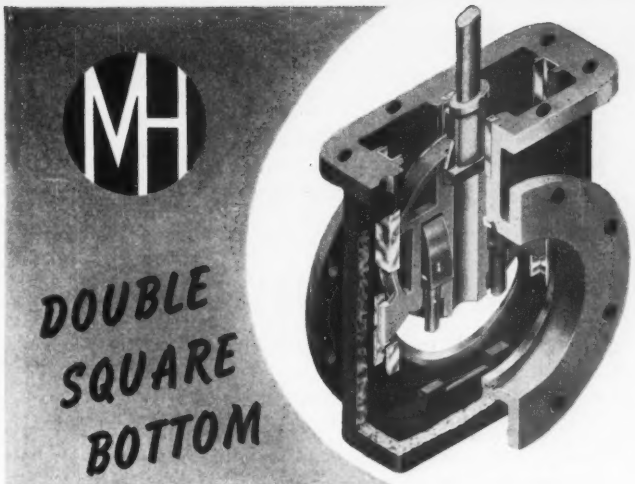
American Concrete Pipe Association, annual convention, Drake Hotel, Chicago, Ill., Feb. 28-March 1.

American Society for Testing Materials, spring meeting, Hotel Statler, Cleveland, Ohio, March 3-7.

American Railway Engineering Association, Palmer House, Chicago, March 11-13.

New Jersey Sewage and Industrial Wastes Association, Traymore Hotel, Atlantic City, N. J., March 12-14.

American Power Conference, Sherman Hotel, Chicago, March 26-28.



GATE VALVES

When it is desired to install a gate valve for throttling purposes, or in a vertical pipe line, M & H double square bottom valves have many important advantages.

When valve is opened, each of the three shoes on both discs immediately contact the feathered edge of the tracks. These three contacts result in the disc being eased away instantly from the seat. The shoes then ride the tracks squarely and firmly for the full travel of the disc. In closing, discs ride the tracks down to a point exactly opposite the valve seat. At that point, the discs are clear and free to seat by action of the two spreaders, each functioning independently of the other.

M & H double square bottom valve prevents the down stream gate from tilting into the down stream port opening and by chatter or vibration damaging the seat and gate rings. These valves can be installed with either disc on the down stream side.

Available in classes A, B, and C, sizes 3" and larger. Where needed, can be supplied with rollers; or roller, tracks and scrapers. For complete information, write or wire M & H Valve and Fittings Company, Anniston, Alabama.

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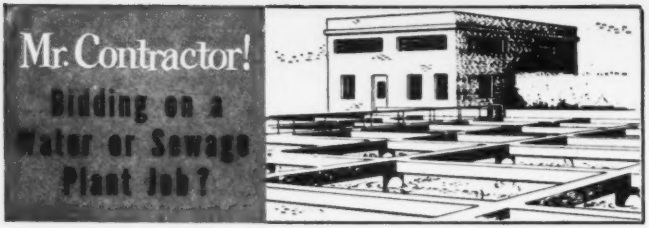

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offers you these outstanding advantages

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OBITUARIES

Allan M. Hirsh dies, concrete pipe pioneer

Allan M. Hirsh, founder of the Lock Joint Pipe Co., East Orange, N. J., and its senior officer for nearly 50 years, died Dec. 21. His death, briefly noted in these pages Jan. 3, brought an end to a career that was devoted without interruption to the improvement of concrete pipe for water and sanitary service.

When he founded the company, the "lock joint" was merely the overlapping of the steel mesh from adjacent sections, covered in the field with mortar. Later, to increase resistance to pressure and provide for expansion, a piece of crimped copper replaced the mesh on one side of the joint. The next development brought in the steel ring at the joint which was calked with lead, and finally, in 1935, the lead was replaced with rubber, eliminating calking and improving flexibility. During this time pipes increased in size and in pressure resistance until today many hundreds of miles of 10 ft diam pipe have been installed, while the smaller size totals are in the thousands of miles.

Shortly before Mr. Hirsh's death, the fourth of the company's permanent pressure pipe plants was opened in South Carolina. Others had previously been located in New Jersey, Kansas and Michigan, and over the years many large temporary plants had been set up both in this country and abroad to handle large contracts at the site. Mr. Hirsh, in his student days at Yale, from which he graduated in 1901, was a well-known baseball player, and gained lasting recognition in the field of music from writing the college's famous "Boola Boola" song.

Benj. A. Howes dies, construction engineer

Benjamin A. Howes, 76, construction engineer and architect who developed specifications for billions of dollars worth of government and war housing, died at Walpole N. H. Jan. 9.

Educated at M.I.T., Mr. Howes spent the years 1905 to 1933 as a specialist in New York. He was noted for his knowledge of reinforced concrete and other construction subjects. He did design and construction work in South Ameriea, South Africa and other foreign countries. Latterly he

(*Continued on next page*)

Obituaries . . .

was senior engineer for the U. S. Housing Administration, being chief of specifications and materials.

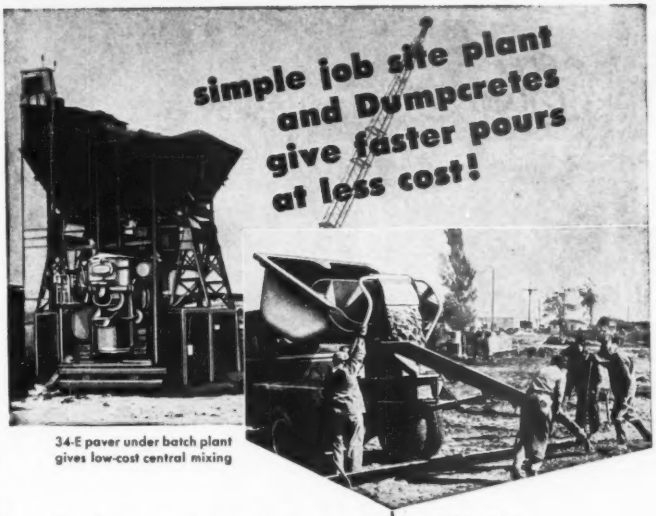
Harlan A. Herrick, 59, consulting engineer for Greece Township, N. Y., since the latter 1920s, died Dec. 25. He had been active in laying out new housing subdivisions. Greece has been one of the fastest-growing communities in the state since 1946. During the 1930s, Mr. Herrick was largely responsible for design and installation of the town's sewage and disposal system, a large project financed in part by the Public Works Administration. Mr. Herrick operated his own civil engineering firm since 1923. He studied engineering at Syracuse University.

Foster F. Ringrose, 50, associate engineer in charge of survey and design in the Utica district office of the New York State Department of Public Works, died Dec. 23. He was graduated from Clarkson Institute, Potsdam, in 1923. Upon graduation, he joined the New York State Division of Public Works at Rochester. Soon after, he moved to its Long Island City office and then to the Utica district office. He was employed 28 years in those two positions.

William F. Clapp, 71, marine biologist, died at Duxbury, Mass., Dec. 28. He was a consultant on construction jobs for public utilities, governmental and private waterfront projects, notably in connection with methods of preventing damage by marine borers. He served on the faculties of Harvard University and the Massachusetts Institute of Technology, and operated the William F. Clapp Laboratories in Duxbury for many years.

John W. Ferguson, 79, designer and developer of many of the Boston, Mass., harbor installations in the last half century, died in St. Petersburg, Fla., Jan. 6. He retired in 1939 after 45 years' service with the Massachusetts Department of Public Works. He developed the Charles River Basin, Commonwealth Pier, the South Boston Drydock, and piers in East Boston. He was a graduate of Massachusetts Institute of Technology.

U. J. Haughton, 42, district engineer for the Indiana Highway Department, died Dec. 25 at Vincennes, Ind. He had been with the state highway department since 1932 and district engineer three years. He was a graduate of the University of Louisville.



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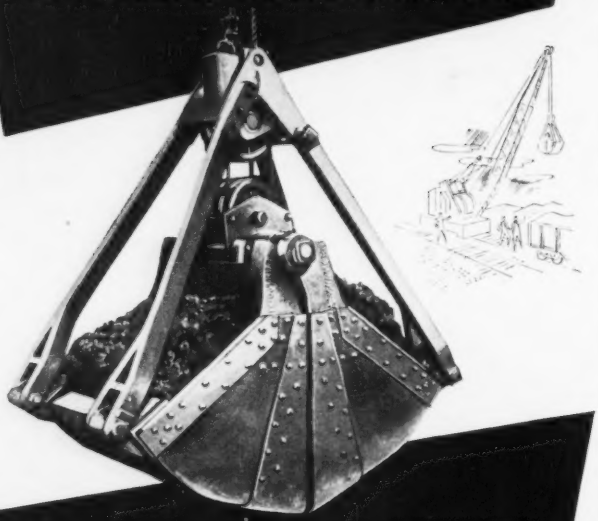

ROPE REEVE, POWER WHEEL AND LINK TYPE

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Obituaries . . .

Charles Wellington Wilson, 82, pioneer Los Angeles builder, died Dec. 15. He went to Los Angeles in 1901, where he founded the general contracting firm of C. W. Wilson and Sons. He retired in 1931. C. W. Wilson and Sons has recently combined with Weymouth Crowell Co. to form the Crowell-Wilson Co.

Carroll P. Bassett, 88, consulting engineer, who between 1886 and 1910 erected water works, electric light, drainage and sewage disposal plants in New York, New Jersey, Pennsylvania, Connecticut, West Virginia and South Carolina, died at Summit, N. J., Jan. 9. He was a civil engineer graduate of Lafayette College.

James E. Perry, 79, who planned most of the parks and boulevards in Indianapolis, Ind., died Jan. 2. He joined the park department in 1908, retiring in 1947. He received his engineering education through correspondence courses, and was responsible for the development of the city's 3,500 acres of parks.

E. C. Gwillim, 63, city and county engineer at Sheridan, Wyo., for 15 years, died Dec. 31. A graduate of the Colorado School of Mines, he had been in federal service for years. He was with the irrigation and land reclamation section of the Department of Agriculture in Korea in 1948, and later was irrigation engineer in Oregon, Washington and Idaho.

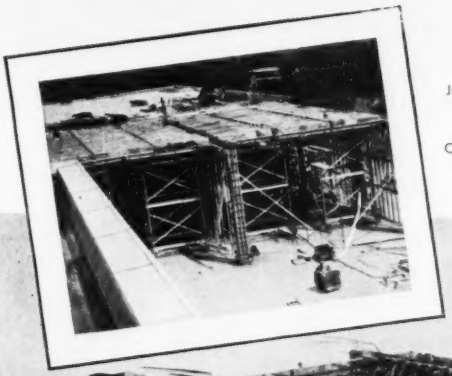
Arthur E. Smith, 62, a civil engineer for the Massachusetts Department of Public Works, died Jan. 5, in Natick.

Herman Wolter, 65, of Maywood, N. J., a civil engineer with the Port of New York Authority, died in St. Petersburg, Fla., Jan. 5.

Harry E. Dole, 77, former senior construction engineer of the Nebraska Farm Security Administration, died in Detroit, Mich., Dec. 28.

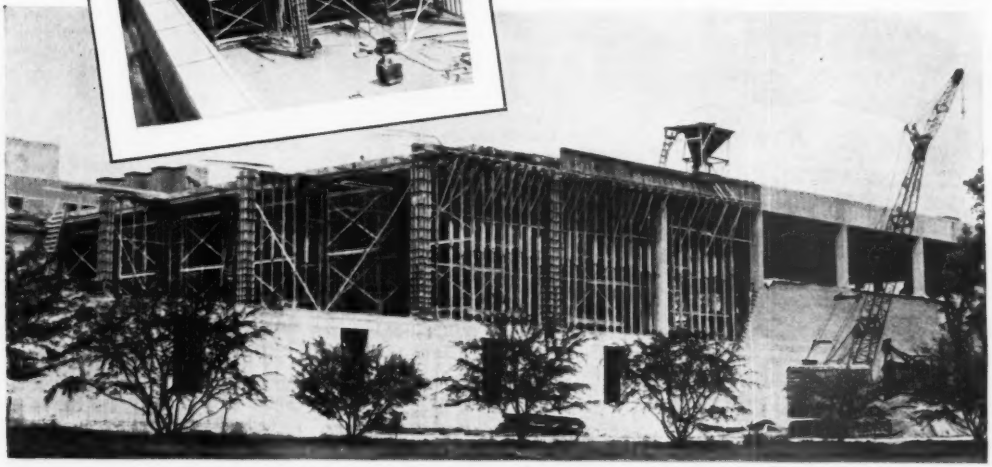
Morris C. Emanuel, 71, for 22 years an engineer for the federal government, died at University City, Mo., Jan. 3. He had worked for the Reconstruction Finance Corporation, the Defense Plant Corporation, and the Public Works Administration.

Sam Dyer, 61, for the last 26 years engineer of Framingham, Mass., died there on Jan. 5. He was graduated from the University of Maine in 1912. For some time he was city engineer of Attleboro, Mass.



Jewel Tea Company's warehouse addition, Barrington, Ill.

Owner: **JEWEL TEA COMPANY,** Chicago, Ill.
Contractor: **A. L. JACKSON,** Chicago, Ill.
Architect: **HOLABIRD & ROOT & BURGEE,** Chicago, Ill.



Use of Lehigh Early Strength Cement and movable scaffolds for forms kept job moving fast.

TIME SAVED, COSTS CUT

Pouring the 300' x 120' roof slab.

with LEHIGH EARLY STRENGTH CEMENT

Time was saved, costs were cut in pouring the roof slab on the Jewel Tea Company's warehouse addition shown here. Several factors contributed to these savings. They included a well-planned operational cycle, the use of movable scaffolds for the forms; and —to allow early re-use of forms—a fast-curing concrete made with Lehigh Early Strength Cement.

The result! A two-way saving—in time, in money. In the six-pour operation, forms were stripped in 3 days instead of the usual 7. Construction time was reduced by 24 days; labor and overhead costs were cut 18%.

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Housing bond rates show optimism

Sale of public housing bonds totaling more than $134 million in New York last week was looked upon with some cautious optimism in the money markets, despite the relatively high rates of interest (up to a top of 2.20 percent) at which the bonds were immediately reoffered to the public.

Average yield of the bonds sold was 1.959 percent.

More than 30 individual municipal bond issues—ranging from $25.1 million of Baltimore bonds down to $621,000 in bonds of the Taylor, Texas, Housing Authority—were offered at the sale.

Of the total, $118.8 millon were bid in by an "investor" group of underwriters including Lehman Bros., Blyth & Co., and Phelps Fenn and Co., of New York. An additional $15.8 million was bid in by a group of banks headed by Chemical Bank & Trust Co., also of New York.

These underwriters immediately reoffered the bonds at prices to yield 2 percent to 2.20 percent (for the bank group) and 1 percent to 2.12 percent for the investor group. This was the first major offering of such securities in the new year. Two similar offerings —of $171.3 million and $162.7 million —were made in July and October of 1951. Average yield on bonds sold in July was 2.075 percent and in October, it was 2.0519 percent.

• **No surprise**—The ease with which the government sold the bonds was not surprising in view of a number of obvious advantages, of this type of bond issue, and particularly in view of a general opinion that money available for investment in this construction-supporting field is plentiful.

Advantages of the bonds include the facts that they are tax-free and that they are all issued under the protection of the Federal Public Housing Administration, which must see to it (by contribution, if necessary) that the local agencies meet payments on the bonds.

• **Bids high**—However, the top yield rate of 2.20 percent would indicate relatively high bids for the bonds by the underwriting groups (who make their profit on the difference between what they actually pay the housing groups for the bonds and the sale price to other buyers).

For comparison, a check of municipal bond yield rates by ENGINEERING NEWS-RECORD indicates that the current 1.959 average rate is below the monthly average for 1950 and 1951 (when the averages were 1.98 and 2.0 respectively). Low average shown in 1951 sales was 1.61 percent in February, but the yield on this latest offering was below the 2.10 percent figure for December, 1951. High point in 1951 was 2.22 percent in June.

• **Strong market expected**—Financial circles regarded the sale as good test of the market. Before the bids were opened, the experts were agreed that a slowing-down of such bond sales toward the end of 1951 had created a stronger market for the bonds (less than $40 million in bonds are scheduled for sale in the next month). The financial observers saw large supplies of bid money available.

In fact, so optimistic was the picture that New York's Triborough Bridge & Tunnel Authority was reportedly reopening talks on a huge $210 million refunding issue. The authority had halted preliminary negotiations along this line early in December because the market seemed weak.

Even with the federal government's deficit financing (and the threat of further inflation) and heavy business investment in new plant and equipment, the sale seemed to show that money for construction—at least for the present—is still in good supply.

Bankers see funds for 850,000 homes

Taking sharp issue with the announced intention of the Defense Production Administration to cut 1952 housing starts to a maximum of 600,000 (ENR Jan 17, p. 23) the Mortgage Bankers Association of America last week attacked the cut as inflationary.

In a talk to the organization's annual convention at Washington, Aubrey M. Costa, president of the group, also asserted that there are sufficient mortgage funds available to finance building of 850,000 units.

This viewpoint, although contrary to that of the National Association of Home Builders, should be welcomed by that organization. NAHB has claimed that 850,000 units could readily be built, but was of the opinion that mortgage money is tight, particularly where it involves "GI" 4% loans. W. P. Atkinson, NAHB president,

(*Continued on p. 74*)

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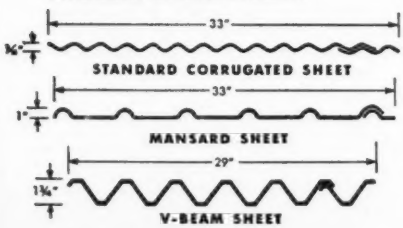
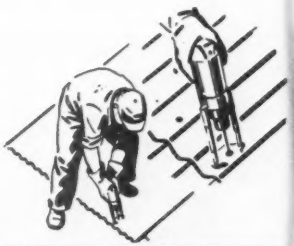


THE TOP-SPEED FASTENING METHOD

permits all fastening work from the outside, eliminates interior scaffolding. This new method permits erection crews to place twice as much material in the same time, with safety. Top-Speed Insulation is a Robertson method for applying insulation from the outside, before the Galbestos is fastened over it. This method also halves the time. It makes a good-looking job inside. Needs no painting.



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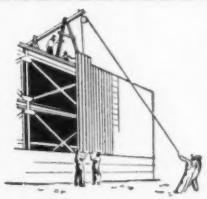
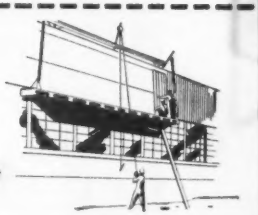


◀ Q-PANEL (STANDARD) OR Q-PANEL ▶ (G-TYPE)



Q-Panels are the famous Robertson factory-fabricated, insulated curtain wall. They are available in a variety of fluted metal surfaces. Available 2' wide, in lengths up to 25', lightweight, only 3¼" thick, but superior in insulation value to a 12" masonry wall with furred plaster. A small crew can erect a Q-Panel—50 sq. feet—in 9 minutes.

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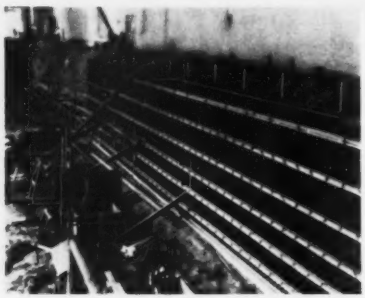

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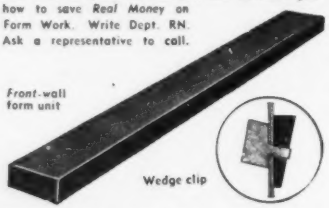

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Finance . . .

said investors are shying away from the GI loans, because of the lower interest rate and government red tape involved in making such loans.

Mr. Costa told the bankers that such a cutback in housing starts will be inflationary because it will drive prices of existing construction higher. He added that it will bring additional unemployment, since many building tradesmen will be unable to convert their skills to other jobs, because of specialized training and age.

Grant $150 million plant tax exemption

Calling into play a 15-year-old law designed to attract new industry, the state of Louisiana this week granted a $150 million industrial property tax exemption for an aluminum plant.

The plant is under construction at Chalmette, La., near New Orleans, by the Kaiser Aluminum and Chemical Corp. Kaiser officials said that an application will be filed later for exemption on a planned $16.5 million for a steel plant at Baton Rouge.

The $150 million exemption was the largest ever granted in the state, through its Board of Commerce and Industry. The tax exemption for the plant lists costs of $74 million for equipment, $39 million for the building, $35 million for construction and labor costs, and $2.5 million for miscellaneous items.

State officials said that the previous high exemption was for $34.6 million granted in 1948 to an oil company near Lake Charles, where the company manufactures lubricating oils and waxes.

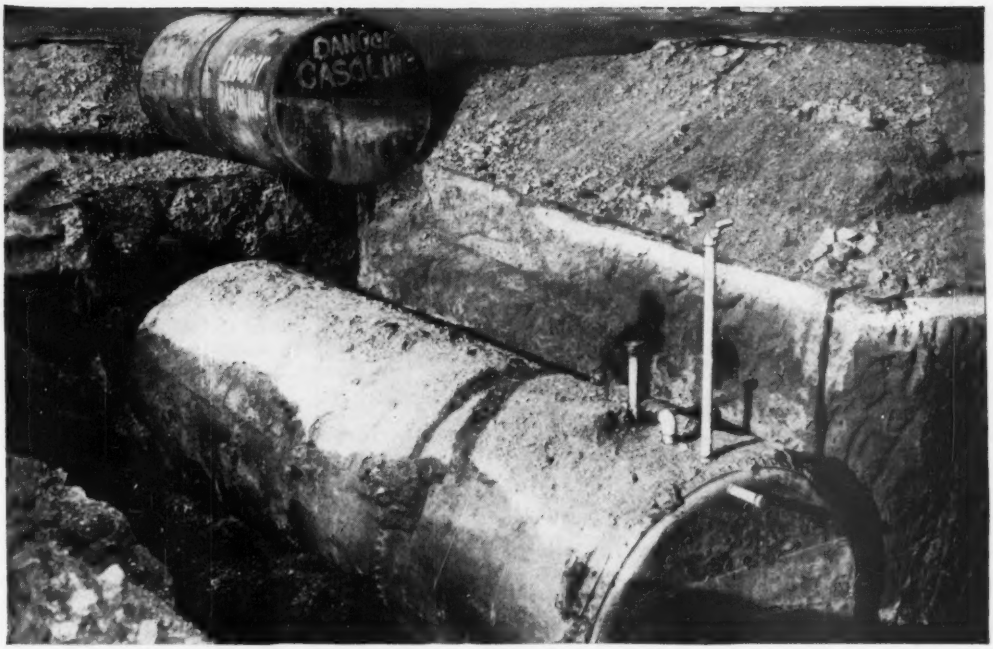
Under provisions of the 1936 law, property tax exemptions can be granted for 10 years on new or expanding plants.

Quarter of U. S. mortgages held in N. Y. area

Roughly 25 percent of all the mortgage debt in the United States is held by investors in the Second Federal Reserve District (New York State, northern New Jersey and Fairfield County, Conn.), compilations showed this week.

According to the Federal Reserve Bank of New York, the total dollar volume of mortgages being serviced or held on their own account by 4,378 organizations and individuals reached the staggering total of $19.6 billion. In addition, $1.18 billion of mortgages held by lenders outside the district were being serviced.

The compilations were made as a result of provisions of Regulation X.



buried in 1934 . . .

good as new 17 years later!

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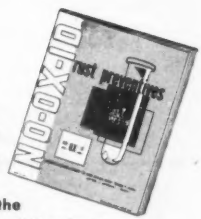

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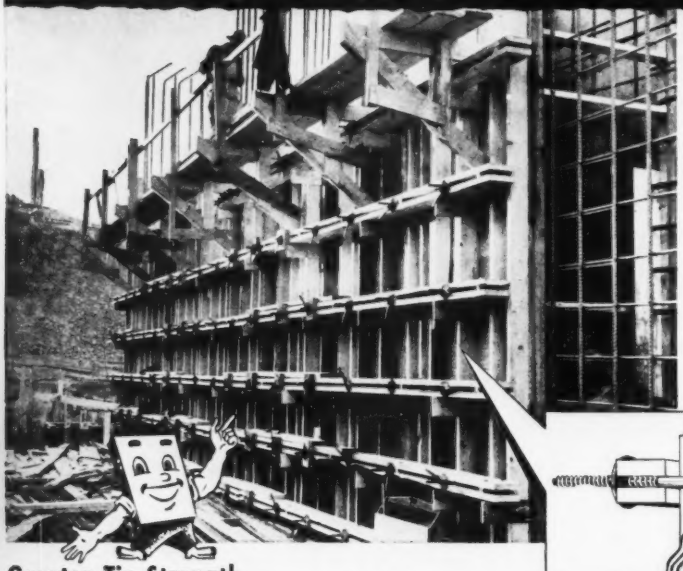

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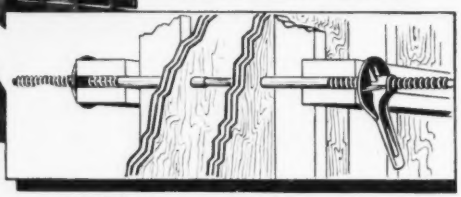

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Major decisions hang on AFL meet

Decisions of major import, labor-wise, to the construction industry will hang on results of the annual meeting of the executive council of the AFL's Building Trades Department at Miami Jan. 22.

The meeting will precede the annual 10-day session of the general executive council of the AFL.

Among the major decisions hanging fire—but likely to come to a quick head after the executive council session—are:

1. Formulation of policy on wage stabilization by the Construction Industry Stabilization Commission.

2. Further action to protest deep slashes in construction to be permitted in 1952 (ENR Jan. 17, p. 23) which labor men fear will cause widespread unemployment in the building trades.

3. The fate of the National Joint Board for Jurisdictional Disputes.

• **Wage policy**—The CISC (an arm of the Wage Stabilization Board charged with particular responsibility for construction) had already made clear its intention to postpone any wage policy decision until early in February.

Basic reason for deferring policy is the uncertainty of labor leaders themselves within the Building Trades Department. Their inclination has been to "wait and see" what the steelworker unions succeed in getting in their current set-to with management, before setting up any policy of their own for the construction industry. As a result, CISC has held up its decision. (The labor leaders' action on this matter isn't, of course, the only deterrent to new policy. Final WSB decision on what to do about fringe benefits also will have a strong effect.)

• **Protest**—Efforts of New York's building tradesmen (ENR Jan. 17, p. 124) to get some kind of special consideration from NPA so that non-defense work can continue in the metropolitan area will certainly get a hearing.

It was learned last week that representatives of the big town's building trades council had been invited to the executive meeting to present their case and their recommendations.

Just what the parent AFL body could do about the situation isn't at all clear at the moment, but the threat of really heavy unemployment (New Yorkers placed it at 22,000 a week ago) in one of the strongholds of building labor is enough to force consideration from top level.

• **Joint board**—The threat of a break up of the jurisdictional disputes board was made clear some weeks ago (ENR Jan. 10, p. 81), when a long-standing fight between electrical workers and operating engineers came out into the open. The two unions have been feuding over handling of equipment in connection with installation of transmission lines.

IBEW—and its group of specialty contractors—has threatened to pull out of the agreement backing the joint board. If it should, the action would effectively wreck the board.

Safety course cuts building accidents

A state-sponsored course in safety on construction work is paying off for Florida. Within little more than a year, accidents on the job have been substantially cut down, state officials report.

Looking over the record two years ago, officials of the Florida Industrial Commission were amazed — and alarmed. They found that disabling accidents in the building field were far above average—that thousands of man hours and millions of dollars were being wasted because of badly built scaffolding, improper handling of power equipment, faulty ladders and debris-littered worksites.

Commission Chairman Raymond E. Barnes got together with John C. Pace, Pensacola contractor and James A. Harper, of West Palm Beach, representing building trades labor. Together they worked out a plan aimed at doing something about the high accident rate.

Using the theme, "See the Accident Coming—Prevent It," the three men launched a 10-hour foreman's safety course. Since then 2349 foremen and key workers from 36 companies have completed the course.

The results, just announced by the Commission:

"1. 34% reduction of the number of compensable accidents and 29 per cent reduction in costs on this class accidents.

"2. 20% reduction in the number of medical only accidents and 22 per cent reduction in costs on this class of accidents.

During the first nine months of 1951 there were 3184 major accidents in the building trades, including fatalities, falls, amputations, broken bones, cuts and bruises. Of these, 707 were caused by faulty handling of materials, 638 by falls, 365 by being stepped on or bumped and 268 by falling objects such as tools.

Labor briefs . . .

• **Seek welfare fund**—Union structural ironworkers at Youngstown, Ohio, have asked contractors for a pay increase of 13.5 cents an hour, and a 6.5 cents an hour union welfare fund.

• **Get back pay**—Retroactive pay for 1,500 members of the Rochester, N. Y., laborers union has been approved by CISC. The payment goes back to the period May 1 through Aug. 23, 1951. Unions and employers joined in a petition for the back pay, when it became clear that payment of an added 4 cents an hour after last August failed to meet terms of an existing contract.

• **Sell school job**—The F. A. Davis & Son Co., non-union electrical contractor of Columbus, Ohio, said it had decided to sell its contract for work on a Columbus school to another firm, to end labor troubles that had held up construction since mid-October. Union employees of other contractors refused to work alongside Davis' men.

• **Stop picketing**—A fight between the local Teamsters union and a concrete hauling concern doesn't give "roving pickets" the right to interfere with construction jobs all over Dallas, Texas, the Fifth Civil Court of Appeals ruled. The appeals body upheld a finding of a district court which declared the union to be in violation of the state's anti-secondary boycott law. The union will appeal.

• **Interpretation**—Under the Taft-Hartley law, a supervisor may be fired for union activities—but not for refusing to engage in an unfair labor practice, NLRB said. An examiner in a case brought by AFL chemical workers found that a foreman was properly fired for helping the chemical workers organize the plant—but not for refusing a company request that he stop helping this union and work, instead, for an independent employees association.

Demand for schools nearing peak; steel shortage will defer many

Whenever the steel shortage begins to ease—or schools get priority—the construction industry can look forward to some good business—school construction projects all over the country are waiting for the green light to go-ahead.

In the next three school years, classrooms will be needed for 1.5 million additional pupils a year. This September, the demand for new schools probably will reach its peak—with an additional 1.7 million enrollment expected (see chart).

But the steel shortage will mean that many of these projects, which should go ahead in 1952, will be deferred. And the plans may not come off the shelf before 1953 or 1954.

Last week, Ralph S. Trigg, of the Defense Production Administration, spelled out what schools can expect in the way of steel for the second quarter of 1952.

Elementary and secondary schools will receive 110,000 tons of steel in the second quarter. Allotments will be sufficient for 2,400 schools now under construction. In addition, the allotments will permit about 500 new starts. The new starts will be made in defense areas and in other areas where overcrowding is severe.

• **Redesign essential**—But the goal won't be met unless there is a "maximum" conversion from structural steel to masonry-type construction, DPA said.

In his end-of-the-year report to the President, Defense Mobilizer Charles E. Wilson said, "School architects have succeeded in conserving steel and other critical materials. Applications received during the fourth quarter of 1951 showed 40% less steel required than in comparable projects during the first half of 1951."

The switch to reinforced concrete design is assumed by DPA. There is no leeway in the second quarter allotments that would permit more starts than DPA announced.

In addition to the elementary and secondary schools, the steel allotments will also permit completion of 241 projects under construction for colleges and libraries. Only 19 new buildings will be started in the field of higher education. Primarily, these will be medical schools and research laboratories.

• **The long wait**—DPA's second quarter steel allotments point up one of the problems that has been haunting school authorities—because there is not enough steel to build needed new schools, there is no immediate chance of replacing existing schools which are obsolete or inadequate.

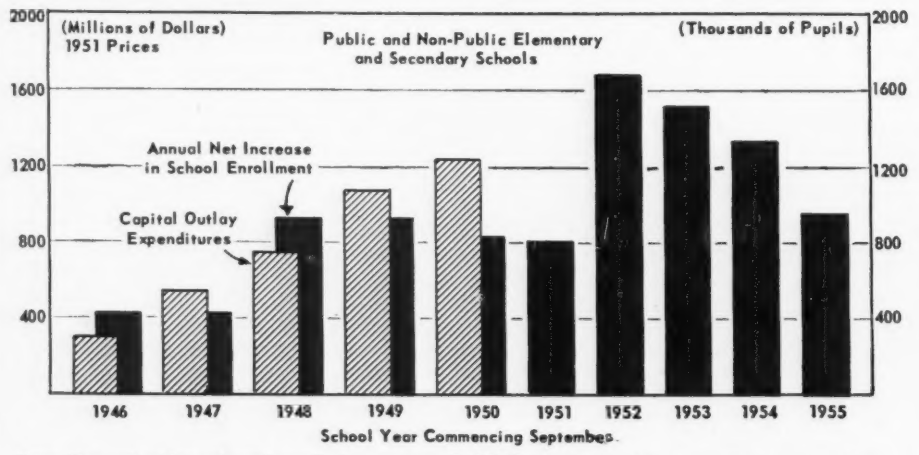
These figures, compiled by Dr. Earl J. McGrath, head of the U. S. Office of Education, show the job the construction industry will be called upon to perform.

Army engineers map construction plans

The U. S. Corps of Engineers last week released a breakdown of their 1952 Congressional appropriation, and it pin-points part of their future construction program.

Congress appropriated overall planning funds of $1 million for general flood control and another $500,000 for rivers and harbors. These funds, along with unobligated balances, would carry on the planning program for 1952.

School construction needs reach peak as 1.7 million will be added to enrollment in September



Note: For each additional pupil enrolled, approximately $1000 must be spent for new school construction.

HERE ARE PROJECTS OF TOMORROW

Alabama	
Howell Mill Shoals Dam	$226,300
Upper Columbia Lock and Dam, Ala. & Ga.	225,000
Arkansas	
Arkansas River and Tributaries, Ark. & Okla.	147,000
Table Rock Reservoir Ark. & Mo.	195,000
District of Columbia	
Anacostia River, D. C. & Md.	25,000
Georgia	
Hartwell Reservoir, Ga. & S. C.	190,000
Hawaii	
Kawainui Swamp	28,000
Iowa	
Lock 19 at Keokuk	55,700
Kansas	
Topeka	70,000
Tuttle Creek Reservoir**	500,000
Toronto Reservoir**	200,000
Strawn Reservoir**	250,000
Kentucky	
Fernbank Lock and Dam, Ky. & Ohio*	109,000
Greenup Lock and Dam, Ky. & Ohio*	130,000
Celina Dam	50,000
Pineville	25,000
Missouri	
Pomme De Terre Reservoir	375,000
Cape Girardeau	100,000
Montana	
Libby Reservoir	125,000
New York	
Monkey Run, Corning	50,000
New Mexico	
Chamita Reservoir	90,000
Ohio	
New Cumberland Lock and Dam, Ohio & W. Va.	39,500
Oklahoma	
Keystone Reservoir	150,000
Oregon	
Hills Creek Reservoir	50,000
Pennsylvania	
Allentown*	35,000
Dam 8, Monongahela River*	40,900
Tennessee	
Carthage Dam	200,000
Stewarts Ferry Reservoir	150,000
Texas	
Dallas Floodway	60,000
Virginia	
Salem Church Reservoir	32,000
West Virginia	
Wheeling-Benwood	40,000
Hildebrand Lock and Dam	35,000

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Cutbacks outweigh new construction in Truman's economic plans

President Truman called for full speed ahead in construction of basic defense industry and building in critical defense areas in his Economic Report to Congress last week.

But he urged continued cutbacks in all other types of construction.

In his summary of legislative recommendations, he included these:

(1) Renew the Defense Production Act for two more years, and strengthen its provisions, particularly those relating to production expansion and to control of prices and credit.

(2) Provide for the construction of needed housing and community facilities in defense areas.

(3) Authorize more Federal aid for school construction and operation in critical defense areas.

(4) Provide for certain urgently needed development projects, particularly the St. Lawrence seaway and power project.

• **Industrial expansion**—Citing expansion programs in steel, aluminum, and electric power, Truman urged continued all-out support for programs "which will make us stronger for the long pull, even though they will increase immediate strains."

These and other high-priority government-assisted industrial expansion programs will absorb this year about a quarter of the supply of copper available for civilian uses, and about one-third of the civilian supply of steel, he said.

There are also a few public programs which must be continued at fairly high levels or expanded, because they are essential to supply our defense requirements and to expand our mobilization base. He specifically mentioned multi-purpose hydroelectric projects, and programs for development of minerals.

• **Cutbacks**—But this does not mean business as usual for other industrial expansion plans, he said.

The demand for vital business expansion means that many non-essential forms of private investment must be deferred. The total of private investment in construction and producers' equipment, which was close to $50 billion in 1951, should be held in the neighborhood of $42 to $44 billion in 1952, he said.

But measured against earlier years, the general level of private investment, even outside of the industrial mobilization base, will be relatively high and profitable. The holding back of some less essential investment will be helpful immediately by reducing inflationary pressures; and helpful in the long run by creating backlogs of opportunity for investment when the security program levels off, he said.

• **Less housing**—Truman said housing starts, which were 1.4 million in 1950 and about 1.1 million in 1951 "will have to be reduced to 850,000 units or less. And to reach this number will require substantial economies in use of scarce materials."

Public works will also suffer, he pointed out. For example, measured in uniform prices, construction expenditures for both highways and natural resources, were considerably larger in 1939 than in any year since. New public construction expenditures for these and other development programs, including education, health and housing, have fallen from about 3% of the gross national product in 1939 to less than 2% in 1951.

We must hold back on construction of schools and hospitals.

Low rent public housing starts in 1952, as in 1951, will be well below the levels contemplated in recent housing legislation, he said.

The postponement of these programs is unfortunate. But like deferred business investment, it may have some good effects later on, the President said. When the defense program levels off, the resumption of these programs can help to take up any slack, he explained.

Bridge delays force state to buy its own steel

Faced with a structural steel shortage that is delaying construction of more than a million dollars in bridge construction, the Oklahoma state highway commission is taking a novel step that will help contractors and may save money for the state.

The state will buy steel itself, through the highway commission, and then pay bridge builders to erect the steel. This is a slightly different approach than that used by Rhode Island (ENR Jan. 17, p. 84). Rhode Island will buy steel and then sell it, at cost, to the successful bidder.

• **Two advantages**—Director C. A. Stoldt, of the Oklahoma highway commission, believes the state purchases of steel will reduce the cost of bridge building and also speed up steel delivery.

He points out that the scarcity of structural steel has compelled contractors to base their bids on probable increases in steel prices by the time the steel is delivered—a method that upped bridge costs.

With the state buying the steel, the commission will take bids on its needs as soon as bridge plans carrying federal-aid funds and requirements are approved by the Bureau of Public Roads.

DPA selects more areas for defense housing

The Defense Production Administration is still setting a fast pace in designating critical defense housing areas where credit curbs will be relaxed to spur needed housing.

Among the latest: Moultrie, Georgia; Great Falls, Montana; Port Townsend, Washington; Anaconda, Montana; Monmouth County, New Jersey; Reno and other parts of Washoe County, Nevada; Patuxent, Maryland; Quantico, Virginia; Palatka, Florida; Victoria County, Texas; Dahlgren, Virginia; Ardmore, Oklahoma; Wenatchee, Washington and Townsville, North Carolina.

Business briefs . . .

• **Cost indexes rise**—The Associated General Contractors Cost Index for December rose two points to a new reading of 380. In December, 1950, the index was 271. The Fruin-Colnon Building Index number for December was 441. The index has risen six points since September.

• **Slum clearance loans**—The Housing and Home Finance Agency has approved a $23,000 slum clearance planning loan for Orlando, Florida. Similar loans were approved for Bristol, Virginia, $22,055; and Aurora, Illinois, $15,542.

• **DPA revises priorities**—The Defense Production Administration revised its system of priorities in the granting of certificates of necessity for fast tax amortization. Preferential treatment is out. All categories will now get equal consideration. And four new categories have been added to the previous list of 10. The new ones: Ferro-alloys, a group of 21 chemicals, selected transportation facilities and electric power generating stations and transmission lines.

UNIT PRICES BID BY CONTRACTORS

Sewage Plant, Camden, N. J.

The six contracts for Camden's Main Sewage Plant for primary treatment, fix the total cost at $5,526,438, just a shade over the engineer's estimate of $5,524,568. Havens & Emerson, New York and Cleveland are consulting engineers; Thomas J. Daley is City Engineer.

The original bids were received August 1, 1951 and the mechanical and steel contracts were let on the basis of this bidding. But the single bid on the general construction contract was rejected and new bids called for September 12 when four bids produced these unit prices.

Of the $5.5 million total cost 85% is for the general construction contract, 3.3% for raw sewage pumps, 6.9% for electrical work, 2% for heating and ventilation, 1% for plumbing, 1.8% for structural steel.

Work was scheduled to begin 30 days after the award of Contract No. 5. All contracts are to be completed in 150 calendar days. Liquidated damages for Contract No. 5 are $100 per day. For contracts No. 5a, No. 5e, and No. 5s, liquidated damages are set at $50 per day, and at $25 per day for Contracts No. 5h and 5p.

The contractor for Contract No. 5, the Eastern Engineering Co., is responsible for providing all materials and equipment for insertion of ducts, pipes, conduits, and other items of a similar nature for the proper operation of the other contracts. Otherwise every contractor will supply all materials and equipment necessary for the completion of his specific contract. Bidders include:

Contract No. 5, general construction

1C Eastern Engineering Co., Atlantic City	$4,691,998
2 Scotia Constr. Co., Inc., New York	
Arthur A Johnson Corp., New York	4,772,469
4 Terminal Constr. Co., Woodridge, N. J	5,046,878

Bids: 9-12-51 Items	Unit	Quantity	Unit prices 1 C	2
Earth exc	cy	35,000	$8.00	$7.80
Fndn cushion	cy	500	7.00	5.00
Bedding sand, gravel or screening	cy	200	7.00	5.00
Lumber lip	Mfbm	100	100.00	50.00
Conc piles	ls	1	505,000	500,000
Wood piles	ls	1	36,000	30,000
Sheet steel piling	t	50	250.00	250.00
Conc, cl A	cy	14,000	70.00	75.00
cl B	cy	100	50.00	30.00
Addnl portland cement	bbl	100	5.00	5.00
Bk mary	cy	10	60.00	100.00
Steel reinf ment	t	1,000	260.00	250.00
Std expansion jts	lf	1,200	3.00	5.00
Vit pipe & specials 6"	lf	100	2.60	2.00
8"	lf	400	2.70	3.00
10"	lf	1,700	2.82	4.00
12"	lf	1,000	3.105	5.00
Std R. C. sewer pipe 18"	lf	600	7.00	10.00
Extra strength RC Culvert pipe	lf	70	40.00	30.00
60"	lf	140	55.00	50.00
72"	lf	420	70.00	100.00
Bell & spigot CI pipe	t	110	260.00	255.00
Flanged CI pipe	t	50	500.00	375.00
CI pipe fittings, b. & s.	t	5	600.00	475.00
flanged	t	85	800.00	575.00
special	t	12	1,000	600.00
Expansion couplings 4"	ea	2	25.00	15.00
6"	ea	2	30.00	20.00
8"	ea	2	35.00	25.00
10"	ea	3	45.00	30.00
12"	ea	4	55.00	35.00
Copper tub & fit ¾" & smaller	lf	100	1.00	2.00
1"	lf	100	1.50	3.00
Wi pipe & fittings ¾" & smaller	lf	400	1.00	1.50
1"	lf	250	1.50	2.00
1½"	lf	100	2.00	3.00
2"	lf	1,000	2.20	4.00
3"	lf	100	5.00	6.00
Gate valves, 1" & small	ea	8	4.00	8.00
2"	ea	2	30.00	30.00
3"	ea	19	45.00	50.00
4"	ea	3	90.00	60.00
6"	ea	28	80.00	80.00
8"	ea	9	160.00	150.00
10"	ea	1	220.00	250.00
12"	ea	1	320.00	300.00
30"	ea	1	3,000	4,000
36"	ea	4	6,250	7,500
Lubr plug valves 1" & smaller	ea	74	13.00	20.00
2"	ea	1	20.00	25.00
3"	ea	12	33.00	40.00
4"	ea	12	42.00	60.00
6"	ea	10	100.00	120.00
8"	ea	30	300.00	300.00
10"	ea	1	450.00	500.00
12"	ea	4	700.00	700.00
Check valves 1½" & small	ea	1	15.00	15.00
2"	ea	2	25.00	20.00
3"	ea	7	27.00	30.00
4"	ea	2	40.00	100.00
6"	ea	1	130.00	150.00
8"	ea	1	200.00	200.00
10"	ea	2	240.00	350.00
Hose bibbs, ¾"	ea	4	7.00	15.00
Stop & waste valves, 1"	ea	9	9.00	20.00
Hose gate valves, 2"	ea	8	24.00	25.00
Floor stands, gate valve	ea	2	150.00	150.00
plug valve	ea	9	150.00	175.00
Cone valves, 30"	ea	4	11,000	12,000
Manual sluice gates 24" x 36"	ea	24	1,900	2,000
36" x 36"	ea	6	2,200	2,500
Motorized sluice gates 36" x 36"	ea	5	3,600	4,000
60" x 48"	ea	1	4,600	5,500
72" x 48"	ea	2	5,500	6,000
Hydr sluice gates 60" x 72"	ea	2	10,000	9,500
Manual sluice gates 60" x 48"	ea	2	3,800	4,000
Street washers	ea	20	30.00	50.00
Hydrants, yard	ea	2	50.00	50.00
fire	ea	5	200.00	175.00
Pipe railing, 1 rail	lf	100	6.00	5.00
2 rail	lf	4,000	7.00	6.00
Misc. ferrous met work painted	lb	120,000	0.46	0.50
galvanized	lb	17,000	0.90	0.75
Misc non-ferr met work	lb	600	2.50	3.00
Misc wood work	Mfbm	2	200.00	700.00
Stl cov plates & sidewalk drs	sf	850	10.00	10.00
Stl floor grating	sf	1,600	15.00	10.00
Trash rack equip	ls	1	13,000	13,000
Pumping equip	ls	1	15,000	25,000
Grit removal equip	ls	1	25,000	20,000
Grit ejector equip	ls	1	21,000	25,000
Comminution equip	ls	1	53,000	60,000
Air diffusion equip	ls	1	14,000	20,000
Metering equip	ls	1	13,000	12,000
Sludge collecting equip	ls	1	170,000	175,000
storage equip	ls	1	60,000	60,000
heating equip	ls	1	14,000	15,000
filtering equip	ls	1	255,000	300,000
Lime handling equip	ls	1	27,000	30,000
Sludge incin equip	ls	1	420,000	440,000
Chimney	ls	1	22,000	25,000
Buildings	ls	1	650,000	650,000
Can hoist	ls	1	2,500	1,500
Motor room crane equip	ls	1	4,000	4,500
Filter room crane equip	ls	1	9,500	10,000
Monorail equip	ls	1	4,300	4,500
Painting	ls	1	25,000	30,000
Walks	sy	110	4.00	4.00
Bit roadway	sy	4,100	3.50	4.00
Conc roadway, 6"	sy	4,700	4.50	4.00
9"	sy	2,300	6.50	6.00
Comb curb & gutter	lf	6,900	2.50	3.00
Cement-asb pipe	lf	1,650	0.50	1.50
Loam	cy	5,300	4.00	5.00
Seeding	sy	32,000	0.20	0.25
Sodding	sy	3,100	1.50	1.00
Fencing	lf	2,400	3.80	5.00
Railroad siding	ls	1	12,000	12,000
Tide gates	ea	2	1,000	1,000
Lab furniture	ls	1	14,000	25,000

Contract 5a, raw sewage pumps

1C Worthington Pump & Machy Co., N.J.	$185,000
2 Dravo Corp, Philadelphia	198,690

Contract 5e, electrical work

1C William E. Snell, Vineland N.J.	383,780
2 Emerson Garden Elec. Co., Inc, Elizabeth	391,600

Contract 5h, heating & ventilation

1C W. C. Devlin & Sons, Bayonne N.J.	110,000
2 Keller & Ragone, Inc Camden N.J.	219,968

Contract 5p, plumbing—American Sanitary Sales & Service Co., Inc. Philadelphia 54,990

Contract 5s, structural steel

Camden Iron Works, Camden N.J. 100,670

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Vt., South Burlington—B.A. 1/29—Arthur W. Hoag & Assoc., engrs., 115 S. Winooski Ave., Burlington, Vt., storm water and sanitary sewerage sys. for Fire Dist. 3, c/o F. H. Abbott, c/o engrs. $68,000. Plans deposit $25.

Conn., Hartford—B.A. 1/31—Bd. Contr. & Supply Metropolitan Dist., 315 Broad St., for East Hartford Sewage Treatment Plant, incl. covered grit channels, pump house, covered sedimentation tanks, administration and filter bldg., covered elutriation tank and digestion tanks and gallery. Plans deposit $25.

BIDS ASKED—BUILDINGS

Mass., Boston—PLANT—B.A. 1/29—New England Provision Co., Inc., 27 Fulton St., 2 story, 53,000 sq. ft. meat processing plant, Southampton St. $750,000. Henshein, Evards & Crombie, 59 E. Van Buren St., Chicago, Ill., engrs. and archits. CD 11/28/50.

Mass., Hanover—GARAGE—B.A. 1/31—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, cement concrete block garage. Plans deposit $10. P. H. Kitfield, c/o owner, ch. engr. CD 9/11.

† **R. I., Newport**—BRIG—B.A. 1/31—Pub. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass., brig, U. S. Naval Training Station, Naval Base, NOY 29549, Spec. 31221. Plans deposit $40. CD 10/31.

Conn., West Hartford—SCHOOL—B.A. 2/1—Town Bd. Educ., Memorial Rd., Florence E. Smith School alterations, addns. Paul D. Bemis, 36 Pearl St., Hartford, mech. engr. Carl L. Maimfeldt, 36 Pearl St., Hartford, archt. CD 4/26/48.

Mass., Amherst—DINING HALL—B.A. 2/1—State, University of Massachusetts, Amherst, 2 and 3 story, 145x188 ft. masonry concrete, dining hall at University of Massachusetts. No. 7918-79-U-304. Plans deposit $25. CD 12/2/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State Hy. Comn., Augusta,

Cianchette Brothers, Inc., Pittsfield, Me. LB **$291,096.** Mattawamkeag River Bridge, Haynesville, F. A. Proj. FI-01-5 (1), Aroostook Co. Bids Jan. 9. CD 12/31.

MAINE—State Hy. Comn., Augusta,

H. E. Callahan, Inc., Auburn, Me. CA **$99,700.** Brooklyn Bridge, Bowdoinham, Proj. S 0157 (1), Sagadahoc Co. Bids Jan. 9. CD 12/31.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **James H. O'Connor**, 62 Middle St., East Weymouth, Mass. CA $4,000,000. 400 RESIDENCES on 80 acre plot to be developed, BROCKTON, MASS. Abington Homes, Inc., Ashland St., Brockton, Mass.

Abraham Blatt, 62 Green St., Brookline, Mass. Separate Contracts. $525,000. fifty-six 3 story, bsmt., 115x195 ft. APARTMENT units, Stephen St., BROOKLINE, MASS. Herman L. Feer & Wm. E. Nast, 27 School St., Boston, Mass., archts.

White Constr. Co., 134 Newbury St., Boston, Mass. LB $827,800. PHA 16-2 HOUSING, Clinton St. and Crescent Ave., CHELSEA, MASS. Chelsea Housing Auth., City Hall, Chelsea, Mass. Bids Jan. 3. CD 12/5.

▲ **Kelly Corp.**, 25 Forest St. Pl., Arlington, Mass. CA Approx. $1,000,000. Co-operative HOUSING DEVELOPMENT, incl. 95 houses, Sudbury and Garfield Rds., CONCORD, MASS. Owner, c/o Carl Koch & Assoc., archts., 57 Brattle St., Cambridge, Mass.

▲ **George W. Coutts Jr.**, 531 Eliot St., Milton, Mass. CA $1,200,000. 80 RESIDENCES. MARBLEHEAD, MASS. Dr. Wallace Haley, 6 Beacon St., Boston, Mass.

▲ **Tornabene Bros. Co.**, Langley Rd., Newton, Mass. CA $1,129,825, est. $1,000,000. M-201 Contr. 1, building for psychotic children, Metropolitan State HOSPITAL, WALTHAM, MASS. State, Dpt. Mental Health, 15 Ashburton Pl., Boston, Mass. CD 12/12, under LB.

Vuono Constr. Co., 217 Bedford St., Stamford, Conn., CA, $451,600, FACTORY addn., 69 Walnut St., STAMFORD, CONN. Pitney Bowes, Inc., 69 Walnut St., Stamford, Conn. Bids Dec. 19. CD 12/13.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

Del., Wilmington—B.A. 1/29—City, Street & Sewer Dept. 251 City Hall, Contr. 5, intercepting sewer "C" 9,500 ft. 60 and 78 in. sewers, 1,600 ft. 18 in. sewers, and misc. items. Plans deposit $25. Whitman, Requardt & Assoc., 1304 St. Paul St., Baltimore, Md., engrs. CD 2/15.

New York—B.A. 1/30—At office Henry A. Cohen, Dir., Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, storm sewer 0.4 mi. Barrytown-Red Hook-Rock City, S.H. 1312, Cont. RC 52-11. est. $27,000. Plans deposit $10.

† **New York**—B.A. 2/1—U. S. Eng., 80 Lafayette St. New York, Zone 13, furnishing, installing 900 long tons stone and 30 yards, concrete stone for constructing 2 concrete fdns., Coast Guard Lights, Montauk Harbor, Block Island Sound, Inv. 03-8652-B. CD 6/9/44.

Pa., York—B.A. 2/1—York City Sewer Auth., City Hall, Contr. 1, structural and mechanical work; Contr. 2, plumbing; Contr. 3, electrical work; Contr. 4, heating for addns. to sewage treatment works on Codorous Creek, north of here. Plans deposit $60. Albright & Friel, Inc., 121 S. Broad St., Phila., Zone 7, consult engr.

BIDS ASKED—BUILDINGS

▲ **N. Y., West Hempstead**—SCHOOL—B.A. 1/30—Bd. Educ., Union Free School Dist., 27, Chestnut St. School, West Hempstead, Junior-Senior High School, Nassau Blvd. north of Hawthorne St., $3,800,000.

▲ **N. Y., Yonkers** — HOUSING — B.A. 1/30 — Yonkers Housing Auth., 47 Loehr Pl., housing, Project NY 3-3, 8 buildings with 415 units, Palisade Ave. $4,000,000.

▲ **N. Y., Schenectady**—INDUSTRIAL CLINIC—B.A. 2/4—General Electric Co., 1 River Rd., 1 and 2 story, 72x172 ft. and 69x84 ft., brick, concrete T-shaped industrial clinic bldg. York & Sawyer, 101 Park Ave., New York, N. Y., archts. Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York, N. Y., engrs. CD 8/22.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, Potter DeWitt Corp., Pavilion, N. Y. LB $1,297,225, 2.53 mi. Ridge Road, Sea Breeze portion of Outer Loop Arterial Plant, Monroe Co.;

Arute Brothers, Inc., 560 S. Main St., New Britain, Conn., LB $2,469,845, grading, paving 6.14 mi. segment of the Ontario Sect. of the Thruway, Monroe Co. Bids Jan. 9. CD 12/20.

NEW JERSEY—State Hy. Dpt., Trenton,

M. J. Stavola, Chapel HILL Rd., Red Bank, N. J., LB $71,955, 1.683 mi. Adamston-Mantoloking Rd., from Osbornville-Adamston Rd. to Mantoloking, Brick Twp. S-178 (1), Ocean Co.;

Nesto Constr. Co., Inc., 100 Riverside Ave., Newark, N. J. LB, $357,185, 2.1 mi. Bloomfield Ave. from Lake Street to Third St. incl. wid'n. 2 bridges, in City of Newark, S-126 (2), Essex Co. Bids Jan. 8. CD 12/20.

PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Livengood, Inc., R.D. 2, Walnutport, Pa., CA. $664,477, four-lane highway 1.53 mi. under Lehigh Valley R.R. bridge with bit. surf. on either side of concrete divisor, T.R. 45, Schuylkill Co. CD 12/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Vermilya-Brown Co.**, 100 E. 42 St., New York 17, N. Y. LB **$5,107,000,** est. $4,000,000. HOSPITAL, 76 Ave., south of Hewlett Ave., GLEN OAKS, N. Y. Long Island Jewish Hospital, c/o Louis Abrahamson, archt., 25 W. 45 St., New York 19, N. Y. Bids Jan. 10. CD 1/9.

Stewart M. Muller, Inc., 47 S. Riverside Ave., Croton-on-Hudson, N. Y., CA. $737,500. Flatbush Ave., KINGSTON, N. Y. Kingston Housing Auth., City Hall, Kingston, N. Y. Bids Nov. 27. CD 11/9.

Brusca Bros., Inc., 5131 Cypress St., Pittsburgh, Pa., CA $694,000. 23 two story bsmnt., 25x112 ft., brick veneer HOUSING, Proj. Pa. 14-9, ALIQUIPPA, PA. Beaver Co. Housing Auth., Beaver, Pa., Bids Dec. 26. CD 1/8, under LB.

Ceasar Dickiccis, 638 3rd St., Clairton, Pa., CA. $825,000. Junior-Senior HIGH SCHOOL, BETHEL, PA. Bethel Municipal Auth., Bethel, Pa. CD 12/11, under LB.

Broad Const. Co., 6333 N. Broad St., Phila., Pa., Separate Contracts. Approx. $500,000. RESIDENTIAL development, Tyson St. PHILA. PA. S. Sherwin Rochlis 5664 Diamond St., Phila., Pa., archt.

Philip Seltzer Co., Western Savings Fund Bldg., Phila., Pa., Separate Contracts. Approx. $600,000. RESIDENTIAL development, Wilson Ave., POTTSTOWN, PA. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

Rupert Constr. Co., 3400 Lancaster Ave., Wilmington, Del., LB, $533,000, Collins Park Elementary SCHOOL NEW CASTLE, DEL. Rose Hill Minquadale School Dist., Collins Park, New Castle, Del. CD 8/8.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

La., New Orleans—B.A. 1/31—East Jefferson Waterworks Dist. 1 3600 Jefferson Hy., Zone 21, Contr. 8, WW imprvs. Plans deposit $50. J. W. Goodwin Eng. Co., 2111 7 Ave. S., Birmingham, Ala., engr.

Miss., Reform—B.A. 2/4—Reform Consolidated School of Choctaw Co., Reform, drilling, casing deep well and installation of pump.

La., Mandeville—B.A. 2/5—State, Div. Admin., Capitol Annex, Baton Rouge, water distr. Sys., sewage collection sys. and gas distr. sys. at Southeast Louisiana Hospital. Plans deposit $30. CD 2/2/49, under Public Buildings.

† **S. C., Charleston**—FIRE CALL BOXES SYSTEM—B.A. 2/6—Navy Dpt., Officer in Charge of Construction, Box 365, Naval Base, exten. fire call boxes sys., NOY 70676. Plans deposit $10.

▲ **Miss., Gulfport**—B.A. About 2/15—City, 60 mi. sanitary sewers, imprvs. $2,500,000. H. D. Shaw & Assoc., M. Saloun Bldg., and Wiedeman & Singleton, Box 1878, Atlanta, Ga., engrs. CD 8/15.

Tenn., Cookeville—B.A. 2/15—City, City Hall, sanitary sewer imprvs. Bids Dec. 20 rejected, LB $588,069. CD 12/4.

BIDS ASKED—BUILDINGS

Ala., Clanton—HOSPITAL—B.A. 1/29—Chilton Co., 40-bed hospital, $400,000. Sherlock, Smith & Adams, 303 Washington Ave., Montgomery, archts. CD 4/11.

La., Morgan City—SCHOOL—B.A. 1/31—St. Mary Parish School Bd., Franklin, high school. Extended date. Favrot, Reed, Mathes & Bergman, Nola Bldg., New Orleans, archts. CD 1/10.

▲ **La., New Orleans**—HOUSING—B.A. 1/31—New Orleans Housing Auth., 1111 Tulane Ave., Proj. LA 1-12, 860 housing units, $7,000,000. Plans deposit $100. Bids 6/19 rejected. CD 7/10, under LB.

▲ **Fla., Orlando**—HOUSING—B.A. About 2/1—Orlando Housing Auth., Orlando, 190 Negro housing units, south of present Washington Shores Negro Housing Development, $1,500,000. Raymond C. Stevens & Richard B. Rogers, 1920 N. Orange St., archts. CD 11/29.

Ga., Manchester—HOUSING—B.A. 2/1—Manchester Housing Auth., Manchester, 50 housing units, $400,000. Summer Locatell & Co., 684 W. Peachtree St., Atlanta, archts.

† **Ga., Albany**—SUB-STATION—B.A. 2/5—Dpt. Navy Office in Charge of Construction, Box 365, Naval Base, S. C., 12,500 volt main sub-station and equip. at Marine Depot of Supplies, NOY 70661. Plans deposit $10. CD 2/5.

La., Gueydan—HOUSING—B.A. 2/5—Gueydan Housing Auth., Gueydan, 14 dwelling units. Plans deposit $25. Joseph H. Gaylord & Co., Sonnier Bldg., Lafayette, archts. CD 1/10/50.

Miss., West Point—HOSPITAL—B.A. 2/5—West Point Memorial Hospital Foundation, c/o Charles H. McCauley, archt., Jackson Bldg., Birmingham, Ala., 50-bed hospital. $500,000. CD 8/15/49.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

Fla., Miami—GARAGE—B.A. 2/6—City, c/o Div. Engineering, 3332 Dinner Key Dr., city garage addns. Extended date. CD 11/14.

N. C., Salisbury—HOUSING—B.A. 2/6—Salisbury Housing Auth., Salisbury, 108 unit housing, NC 15-1 and NC16-3. $750,000. Plans deposit $50. Charles W. Connelly, Builders Bldg., Charlotte, archt. CD 9/26/50.

La., Houma—HOSPITAL—B.A. 2/14—Terrebone Parish Police Jury, Houma, 100-bed hospital. $450,000. Nolan, Norman & Nolan, Queen & Crescent Bldg., New Orleans, archts. CD 5/27/49.

▲ Fla., Tampa—HOUSING—B.A. 3/1—Tampa Housing Auth., 5118 Morgan St., 500 unit apartments, Scott, Governor, Kay, Larmar and Central Sts. $5,600,000.

Ky., Paris—HOUSING—B.A. 3/1—Paris Housing Comm., Paris, 77 housing units. CD 7/20/50.

▲ Tenn., Memphis—HOUSING—B.A. 5/1—Memphis Housing Auth., 264 N. Lauderdale St., 450 housing units in North Memphis. $5,500,000. A. Y. Aydelott & Assoc., 2080 Peabody St., archts. CD 12/4.

SOON LETS CONTRACT—BUILDINGS

▲ La., New Orleans—PLANT—Edwin H. Fitler Co., 5625 Tacony St., Phila., Pa., soon lets contract 200x425 ft. mfg. plant. $1,000,000. Chas. T. Main, Inc., 80 Federal St., Boston, Mass., engr. CD 7/31.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

City, c/o mayor, Wrightsville, Ga., Owner Builds. $35,000, water mains, WRIGHTSVILLE,GA.

† Bradford Builders, 1101 Lincoln Rd. Bldg., Miami Beach, Fla., CA, $254,374, Bldgs. 313 and 314 alterations at Patrick Air Force Base, Inv. 52-85, COCOA, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Jan. 4. C D 11/30.

† Balkim Constr. Co., 461 8 Ave., New York, N. Y., CA $247,249, cold storage plant at MacDill Air Force Base, Inv. 52-76, TAMPA, FLA. U. S. Eng., P.O. Box 497, Jacksonville, Fla. Bids Dec. 21. CD 11/26.

† Belcher Oil Co., 1217 Biscayne Blvd., Miami, Fla., LB $323,738, airfield paving, drainage at West Palm Beach International Airport, Inv. 52-60, WEST PALM BEACH, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Dec. 27. CD 11/23.

† Collie A. Clark, 5710 N. E. 2 Ave., Miami, Fla., CA $114,555, Building Rehabilitation, Phase 2 at Palm Beach International Airport, Inv. 52-87, WEST PALM BEACH, FLA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Jan. 8. CD 12/12.

Southern Bell Telephone Co., Hurt Bldg., Atlanta, Ga., Owner Builds, $270,000, telephone lines, ANNISTON, ALA.

Pat Pace Co., Anniston, Ala., CA, $80,000. street imprvs., ANNISTON, ALA. City, Anniston, Ala. CD 12/13/44.

Southern Bell Telephone Co., Hurt Bldg., Atlanta, Ga., Owner Builds, $250,000, underground telephone conduits PRICHARD, ALA.

H. R. Coker, Sylacauga, Ala., CA, $273,274, filtration plant addns., raw water pumping station, TALLADEGA, ALA. City, Talladega, Ala. Bids Jan. 10. CD 12/28.

Bush Constr. Co., Laurel, Miss. CA $76,787. grading, paving 5.085 mi. hy. between Laurel and Myrick, LAUREL, MISS. Supervs. Jones Co., Laurel, Miss. Bids Jan. 7. CD 12/21.

▲ LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge.

T. L. James & Co., Inc., Ruston, La. CA $1,134,203. 7 mi. Bayou Manhac-Nesser Hy., State Rte. 1500, S.P. 7-08-02 and 7-09-15, F. A. Proj. F. I. 379 (2), Ascension and East Baton Rouge Parishes. Awarded Jan. 9. CD 12/18, under LB.

R. P. Farnsworth & Co., Inc., P. O. Box 1424, Shreveport, La. LB $306,713, addns. to Cross Lake water plant, SHREVEPORT, LA. City, City Hall, Shreveport, La. Bids Jan. 8. CD 12/21.

† Engstrom & Wynn, 1117 Chapline St., Wheeling, W. Va. LB $767,100, est. $667,320. Fourth and Buchanan Sts. pumping stations for floodwall, CIVENG 15-029-52-61, KENTUCKY. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Bids Jan. 9. CD 12/4.

Northeastern Telephone Co., Augusta, Ky. Owner Builds. $250 000. telephone lines, AUGUSTA, KY.

Shelby McCollum, Hopkinsville, Ky. Owner Builds. $60,000. 300-car drive in motion picture theater, between Greenville and Central City, GREENVILLE, KY.

Volz Constr. Co., Ripley, Tenn. LB $127,000. Contr. A mixing and settling basin Paducah Water Works;

Traylor Bros., Inc., Upper Mt. Vernon Rd., Evansville, Ind. LB $82,000. Contr. B, laying 20 in. c.i. feeder main, PADUCAH, KY. City, Paducah, Ky. Bids Dec. 11. CD 11/28.

† Fegles Constr. Co., 711 Wesley Temple Bldg., Minneapolis, Minn., LB $689,179, Dale Hollow Power Plant, Inv. 52-18, Clay Co. TENNESSEE. U. S. Eng., 303 U. S. Court House, Nashville 1, Tenn. Bids Jan. 8. CD 11/28.

BUILDINGS

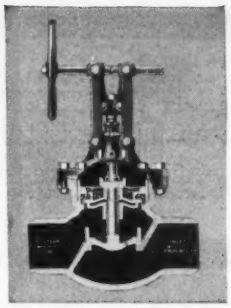
LOW BIDS AND CONTRACTS

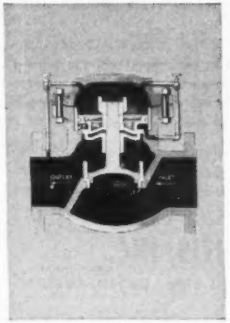
H. L. Coble Constr. Co., Greensboro, N. C., CA. $897,750. 150 HOUSING units, WILMINGTON, N. C. Wilmington Housing Auth., 3 and Greenfield Sts., Wilmington, N. C. Bids Jan. 3. CD 12/13.

Mike Tanner, Allendale, S. C., Owner Builds. Approx. $350,000. HOUSING units, ALLENDALE, S. C.

Leary & Turner Co., 3422 Rivers Ave., Charleston, S. C. Owner Builds. Approx. $300,000. several RESIDENTIAL DEVELOPMENTS, CHARLESTON, S. C.

J. C. Long, 88 Broad St., Charleston, S. C., Owner Builds. Approx. $400,000. 50 RESIDENCES, ISLE OF PALMS, S. C. CD 1/4.





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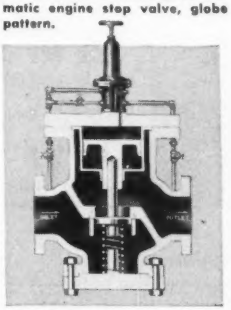
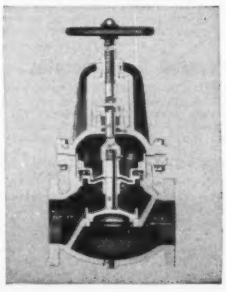
G-A cushioned unloading valve, globe pattern.

G-A combined throttle and automatic engine stop valve, globe pattern.





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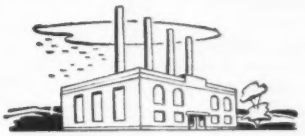

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The ARCHITECT and ENGINEERS report on Smooth Ceilings System

HOW THIS MODERN SCHOOL was built for only 59½¢ PER CUBIC FOOT

Mt. Savage School, Mt. Savage, Maryland

GRILLAGE used with reinforced concrete column.

GRILLAGE used with structural steel or steel pipe column.

THE ARCHITECT—S. Russ Minter:

"I am very happy to report that results obtained in using the Wheeler Smooth Ceilings System are very satisfactory. The cubage cost was 59½¢—a figure rather amazing at this time. This cost was possible in my opinion due to the flexibility possible in the design through the use of this system. It will be a pleasure to recommend this type of system to anyone interested in securing the most economical type of fireproof structure."

THE ENGINEERS—Sandlass, Wieman & Associates

"The total contract price is $1,255,680.00. This is equivalent to a cubage price of approximately sixty ($0.60) per cubic foot for this project. Needless to say, all parties concerned are very pleasantly surprised. It's the lowest cubage cost that we have heard of in this section for a completely fireproof building, with tile wainscot, plastered walls, and acoustical ceilings throughout."

Learn how Smooth Ceilings System can cut your building costs! Write for Complete Information, TODAY!

SMOOTH CEILINGS SYSTEM

802 Metropolitan Life Bldg., Minneapolis 1, Minn.

Daniel Constr. Co., 429 N. Main St., Greenville, S. C., LB $766,000. HIGH SCHOOL, PELZER, S. C. School Dist. 20, Anderson, S. C. Bids Jan. 8. CD 12/31.

▲ † **Grannis & Sloan, Thompson & Street, and R. H. Wattinger**, Pineville Rd., Charlotte, N. C., LB $10,388,000. WAREHOUSES at Marine Depot, NOY 70659, ALBANY, GA. Dist. P. Wks. Office, Box 465, Nawal Base, S. C. Bids Jan. 10. CD 1/2.

Southern Constr. Co., 1235 Reynolds St., Augusta, Ga., CA, $396,451, HOUSING, Projects GA 87-1 and GA 87-2 ASHBURN, GA. Ashburn Housing Auth., Ashburn, Ga. Bids Dec. 19. CD 12/28, under LB.

W. R. Knight, 1976 Northside Dr. N. W., Atlanta, Ga., Owner Builds, $300,000 APARTMENT DEVELOPMENTS, ATLANTA, GA.

Collins & Hobbs Inc., 4011½ Tennessee Ave., Chattanooga, Tenn., LB, $445,000, HIGH SCHOOL, ROSSVILLE, GA. City Bd. Educ., Rossville, Ga. Bids Jan. 8. CD 12/18.

East Coast Constr. Co., 1514 Gary St., Jacksonville 7, Fla., CA, $621,585, est. $640,000. James Weldon Johnson Senior High SCHOOL for colored people, Kings Rd. CD 12/17.

H. C. Hood Co., 1112 Hendricks Ave., Jacksonville 7, Fla., CA, $309,475 Commonwealth St. School 143, CD 12/18, JACKSONVILLE, FLA. Bd. Instruction, Duval Co. 605 Ocean St., Jacksonville, Fla. Bids Jan. 9.

▲ **Gaines Constr. Co.**, 3211 N. W. 27 Ave., Miami, Fla., Owner Builds, Approx. $1,000,000, 176 RESIDENCES in Guava Grove Estates, MIAMI, FLA.

Frank M. Kendall & Son, 1777 N.W. 4 St., Miami, Fla., CA, $100,000, WAREHOUSE, MIAMI BEACH, FLA. Dixie Plywood Co., 3727 N.W. 54 St., Miami, Fla.

Chemical Constr. Corp., 488 Madison Ave., New York, N. Y., CA, $250,000, Phosphate PLANT, NICHOLS, FLA. Virginia-Carolina Chemical Corp., 401 E. Main St., Richmond, Va. CD 1/3.

Dyson & Co., 806 W. Romana St., Pensacola, Fla., CA, $788,980 HOUSING, Project FLA 6-5, 120 units, PENSACOLA, FLA. Pensacola Housing Auth., Pensacola, Fla. Bids Jan. 8. CD 12/31.

Sullivan-Long & Hagerty, 2014 2 Ave. N., Bessemer, Birmingham, Ala., CA, $783,000, HOUSING Project ALA 48-2, incl. 105 units, DECATUR, ALA. Decatur Housing Auth., Decatur, Ala. Bids Jan. 8. CD 12/3.

C. W. Williams, Marion, Ala., CA, $300,000, mfg. PLANT, HAMILTON, ALA. City, Hamilton, Ala. CD 11/23.

Chambers Lumber Co., Athens, Ala., CA, $474,976, HOSPITAL, MOULTON, ALA. Lawrence County Hospital Assoc., Moulton, Ala. Bids Jan. 9. CD 12/4.

Whaley Lumber Co., Troy, Ala., CA, $100,000, PLANT, TROY, Ala. California Spray Chemical Co., c/o contractor.

J. E. Staub & Co., Fulton, Miss. LB $301,000. Negro High SCHOOL, INDIANOLA, MISS. South Sunflower Co. Special School Dist., Indianola, Miss. Bids Jan. 8. CD 12/28.

Bartley & Binnings, 433 Gravier St., New Orleans, La. LB $129,710. Cold Storage PLANT addns., NEW ORLEANS, LA. New Orleans Cold Storage Co., 305 Gaiviene St., New Orleans, La. Bids Jan. 8. CD 1/9.

E. B. Ludwig Constr. Co., 1350 Jefferson Hy., New Orleans, La. CA $90,000. WAREHOUSE, NEW ORLEANS, LA. V. J. Gelpi Co., 4518 Thalia St., New Orleans, La.

John A. Mitchell, Ruston, La. CA $85,000. mfg. PLANT, RUSTON, LA. Ruston Industries, Inc., Ruston, La.

▲ † **M. W. Kellogg Co.**, 225 Broadway, New York 7, N. Y. CA $75,000,000. field fabrication and erection of process auxiliary piping, related equip. in gaseous diffusion units at Atomic Energy Comn. PLANT, PADUCAH, KY. Atomic Energy Comn., 1901 Constitution Ave. N. W., Wash. 25, D. C. CD 12/18/50, under CA.

F. Leo Peyronnin, 5620 Madison Ave., Evansville, Ind., LB 1, $531,729, 2, $521,402. 50 brick over concrete block DWELLINGS units, OWENSBORO, KY. Owensboro Municipal Housing Comm., Owensboro, Ky. Bids Dec. 27. CD 12/12.

† **Bristol Steel & Iron Works, Inc.**, Bristol, Va. CA. Approx. $250,000. structural steel fabricated and erected for main FACTORY bldg., to be operated by Sperry-Farragut Corp., BRISTOL, TENN. Dpt. Navy, Bureau Aeronautics, 18 St. and Constitution Ave. N. W., Wash. 25, D. C. CD 10/8.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Illinois and Missouri**—B.A. 1/31—U.S. Eng., 834 U. S. Court House & Custom House, St. Louis 1, Mo., road surfacing on levee, Grand Tower Drainage and Levee District, Item I-B, Jackson Co., Ill. and Perry Co., Mo. along east bank of Mississippi River between approx. Mississippi River miles 76.5 and 79 above the mouth of Ohio River, Inv. No. CIVENG 23-075-52-51. CD 7/23/45.

† **Mich., Kinross**—BARRACKS—B.A. 2/12—U. S. Eng., 1900 Cadillac Tower, Detroit, Zone 26, five 2 story wood frame barracks, 1 story mess hall and admin. bldg., Kinross Air Force Auxiliary Field. CD 8/29, under Mich., Sault Ste. Marie.

▲ **Mich., Dearborn**—SERVICE—Bids Asked—Ford Motor Co., 3000 Schaffer St., Dearborn, superstructure, brick, steel service bldg., Rouge Plant, $1,000,000, Giffels & Vallet, 1000 Marquette Bldg., Detroit, archts.; foundations only for hot strip mill locker room, air filter house, $82,000, Leo M. Bauer, 534 Free Press Bldg., Detroit, archt. CD 6/7/46.

BIDS ASKED—BUILDINGS

▲ **Ind., Bloomington**—SCIENCE HALL—B.A. 1/31—Indiana University, J. A. Franklin, treas. and exec.

vice pres., Bloomington, 5 story, irregular stone, brick, rein.-con. science hall, $1,000,000. Plans deposit $40, general contract; $20, for plumbing, $20 for heating and ventilating; $20 electrical work; $15 elevator work. A. M. Strauss, Strauss Bldg., Fort Wayne, archt. CD 6/2/47.

† Mich., Detroit—DIESEL ENGINE PLANT—Bids Asked—U. S. Eng., 1900 Cadillac Tower, Zone 26, diesel engine plant, alterations to emergency diesel equip. room, Detroit Tank Arsenal. CD 3/11/46.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15.

George A. Stein Contg. Co., Chillicothe, O., CA $312,616, est. $309,800. Type T-71 and concrete, steel structure, S. R. 26, Washington Co.;

Walter H. Jones, Rte. 1, Wooster, O., CA. $85,337, est. $91,650, wid'n. resurf. C. H. Nos. 59 and 223, Type T-32, Wayne Co.;

H. W. Holt & Son, 998 W. Mound St., Columbus, O., CA. $616,579, est. $591,250, Type T-71 and T-35, U. S. R. 23, Pike and Ross Counties;

The W. M. Brode Co., First Natl. Bank Bldg., Newcomerstown, O., CA. $268,475, est. $274,500, Type T-71 and concrete, steel structure, U. S. R. 21, Washington Co.;

P. & O. Constr. Co., W. Main St., Canfield, O., CA. $836,394, est. $823,700, b. conc. Type 35 and concrete and concrete slab bridges, Pts 1 and 2, S. R. 46, Columbiana and Mahoning Counties;

Oyler Brothers, Inc., 1324 Second St., S. W., Canton, O., CA. $352,135, est. $408,550 b. conc. on water bound macad., Type T-35 on B-20, concrete slab bridge, S. R. 39, Holmes Co.;

Ohio Engineering Co., 105 6th St., Lorain, O., CA. $132,544, est. $162,600. b. conc. on water bound macad. C. R. 1, Lorain Co.;

Pierce Constr. Co., 3005 Bellevue Rd., Toledo, O., CA. $275,100, est. $252,450, Portland cement wid'n. and b. conc. resurf. C. R. Nos. 178 and 189, Lucas Co.;

Ohio Road Improvement Co., Chamber of Commerce Bldg., Columbus, O., CA. $331,654. est. $357,100, b. conc. S. R. 53, Ottawa Co. Grand total $3,210,834. Bids Dec. 18. CD 12/10.

▲ Midland Constructors, Inc., 222 West Adams St., Chicago, Ill., CA, 46 mi. power line from Joppa, Ill. plant to West Frankfort, Ill.;

Southeastern Utilities Service, Allatattah Station, Miami, Fla., CA, 35 mi. 138 KVA line from West Frankfort, Ill. to Ashley, Ill.;

A. S. Schulman Electric Co., 2416 S. Michigan Ave., Chicago, Ill., 43 mi. 230 KVA line from West Frankfort, Ill. to Coulterville, Ill.;

L. E. Myers Co., 53 W. Jackson Blvd., Chicago, Ill. CA 44 mi. 230 kva line from Coulterville, Ill. to Cahokia, Ill., power plant;

Edgar Stephens & Sons, Cairo, Ill., CA, grading, and substation construction at West Frankfort, Ill.;

G. E. Tillman Constr. Co., Centralia, Ill., CA, substructure for station at West Frankfort, Ill.;

Bearden Constr. Co., Marion, Ill., contract for building revision at West Frankfort, Ill.;

V. & M. Contracting Co., Inc., 4030 Chouteau Ave., St. Louis, Mo., CA, grading, sub-station and power foundations at Cahokia, Ill., for 145 mi. 230,000 volt electric power transmission line, ILLINOIS. Union Electric Co. of Missouri, J. W. McAfee, pres., 315 N. 12 Blvd., St. Louis 1, Mo. Total est. Approx. 10,000,000. Swerdrup & Parcel, Inc., Syndicate Trust Bldg., 917 Olive St., St. Louis 1, Mo., engr. CD 2/7.

▲ILLINOIS—State Div. Hys. Springfield, Ill.

General Paving Co., 30 E. John St., Champaign, Ill., LB $157,845, c. conc. base course wid'n. 7.18 mi. U. S. 5 DeWitt and Macon Counties; LB $136,020, c. conc. base course wid'n. 10.59 mi. on Ill. 32, Moultrie and Shelby Counties;

Madison Constr. Co., P.O. Box 222, Edwardsville, Ill., LB, $580,094, c. conc. 2.12 mi. Alt. US 67 Madison Co; LB, $168,414, grav. or crushed stone surf. course 4.87 mi. Ill. Route 738, and building 1 bridge, Greene Co;

Gallagher Asphalt Co., 181 St. Indiana Ave., Thornton, Ill. LB, $521,364, bit. resurf. 9.33 mi. US 54 and Ill. 49, Will Co;

West Constr. Co., 1208 S. Bunn St., Bloomington, Ill., LB, $77,567, c. conc. base course wid'n. 5.7 mi. Ill. 12 Tazewell Co.;

Collins Bruley Constr. Co., P.O. Box 228, Decatur, Ill., LB, $189,416, bit. resurf. 7.43 mi. US 51, DeWitt and Macon Counties;

Arcole Midwest Corp., 3225 Main St., Evanston, Ill., LB $312,545, bit. resurf. 7.08 mi. Ill. Rtes. 19 and 58, Cook Co.

J. P. Constr. Co., 1750 State St., Chicago Heights, Ill., LB, $314,387, c. conc. paving 1.28 mi. Ill. 7, La-Salle Co.

R. A. Cullinan & Son, Inc., Tremont, Ill., LB, $132,228 bit. resurf. 5.7 mi. Ill. 121, Tazewell Co.;

Howell Asphalt Co., Natl. Bank Bldg., Mattoon, Ill., LB, $257,031, bit. resurf. 10.93 mi. Ill. Rtes. 32 and 133, Moultrie and Shelby Counties. Bids Jan. 11. CD 12/28.

† Ashland Constr. Co., 6808 N. Clark St., Chicago, Ill., CA, $242,190, aircraft refueling sys. at O'Hare Field, Serial No. 11-032-52026, CHICAGO, ILL. U. S. Eng., 520 Merchandise Mart, Chicago 54, Ill. Bids Dec. 18. CD 12/12.

▲ MICHIGAN—State Hy. Dpt., Townsend St., Lansing, Zone 13.

Darin & Armstrong, Inc., 2041 Fenkel St., Detroit, Mich. LB $1,404,389, est. $1,460,000. two bridges, ramp structures, West Grand Blvd. over Edsel Ford Expressway, UI B 31 and B 32 of 82-22-10 C1 (UI 391 36), Wayne Co. Bids Jan. 9. CD 12/28.

Levering Telephone Co., Petoskey, Mich. Owner Builds. $160,000. telephone expansion, incl. 49 mi. telephone lines, rebuilding 32 mi. lines, dial offices, Carp Lake and Levering, PETOSKEY, MICH.

BUILDINGS

LOW BIDS AND CONTRACTS

Carmichael Constr. Co., 148 E. Miller St., Akron, O., CA. Approx. $755,000. 5 story wing connecting to the west to nurses' home, HOSPITAL, AKRON, O. St. Thomas Hospital, 444 N. Main St., Akron, O. CD 5/16.

Robert Setterlin & Sons Co., 1030 W. 3 Ave., Columbus, O., LB $711,000, 2 bldgs., 2 two story, brick, concrete Junior Senior High School and accessory units, COLUMBUS, O. Bd. Educ., Marion Twp., R. D. Helwig, clk., 1301 Smith Rd., Columbus, O. Bids Jan. 8. CD 12/18.

▲ Joseph Bucheit & Sons Co., 819 Mahoning Ave., Youngstown, O., CA. $2,239,362, general constr. incl. plumbing, heating, ventilating, electrical work, elevators, etc. rebuild 2 wings and remodel, modernize South Side HOSPITAL, YOUNGSTOWN, O. Youngstown Hospital Assn., North Side Gypsy Lane and Goleta St., Youngstown, O. Bids Oct. 15, awarded Jan. 9. CD 10/9.

▲ † E. I. du Pont De Nemours & Co., du Pont Bldg., Wilmington, Del., CA, $8,966,000. Design, construct and operate rehabilitation of Indiana Ordnance PLANT, CHARLESTOWN, IND. U. S. Eng., 830 W. Broadway, Louisville 1, Ky. Awarded Jan. 9.

Birchard & Roberts, 23931 Kean St., Dearborn, Mich. CA $550,000. 2 story, brick, steel, concrete Oxford and Hamilton SCHOOL addns., BERKLEY, MICH. City, Bd. Educ., 2325 Catalpa St., Berkley, Mich. Bids Dec. 19. CD 12/10.

† Darin & Armstrong, Inc., 2041 Fenkel St., Detroit, Mich. CA $500,000. 2 WAREHOUSES for inflammable materials, Eng. 20-064-52-17, Center Line, DETROIT, MICH. U. S. Eng., 1900 Cadillac Tower, Detroit, Mich. Bids Nov. 27. CD 11/12.

A. W. Kutsche & Co., 2924 W. Grand Blvd., Detroit, Mich. CA $155,000. 2 story, brick, steel, concrete POWER HOUSE with compressor room, St. Antoine St., DETROIT, MICH. Fisher Body Div. General Motors Corp., 6231 St. Antoine St., Detroit, Mich. CD 8/13/45.

▲ G. A. Karam Co., 23034 Battelle St., Hazel Park, Mich. Owner Builds. $2,400,000. 300 single frame HOUSES, John R. and Nine Mile Rds., HAZEL PARK, MICH.

▲ Louis Savage, et al, 1266 Penobscot Bldg., Detroit, Mich. Owner Builds. $2,000,000. Two hundred 2 story, bsmnt. family APARTMENT units, US-10 near Ashman Circle, MIDLAND, MICH.

▲ Huntington Park Development Co., Adolph Komer, pres., Roseville, Mich. Owner Builds. $12,000,000. 1,200,000 sq. ft. SHOPPING CENTER, incl. 650 brick family APARTMENT bldgs., 400 single brick HOUSES, on Hartung Airport site, 104 acres, ROSEVILLE, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† Colorado—CONTROL BOARD, etc.—B.A. 1/29—Bureau Reclamation, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or Loveland, Colo., control board, panels, equipment relays, transmitter-receiver sets, associated equipment, telemetering board, for Pole Hill Power Plant, Flatiron Power and Pumping Plant, Estes Power Plant, Colorado Big Thompson Proj., Spec. DS 3612. L. N. McClelland, ch. engr.

† Colo., Boulder—B.A. 1/29—Atomic Energy Comn., Santa Fe Operations Office, P. O. Box 5400, Albuquerque, N. M., 300,000 gal. cy water storage tank, 125 ft. above concrete foundation, $75,000-$100,000. The Austin Co., 1300 Glenarm Pl., Denver, archt. and engr.

Kan., Olathe—B.A. 1/29—Johnson Co., Olathe, sewerage imprvs., Main Sewer Dist. 1, Mission Twp. $75,000. Black & Veatch, 4706 Broadway, Kansas City 2, Mo., engrs. CD 8/3.

† Missouri—B.A. 1/29—U. S. Eng., P. O. Box 97, Memphis 1, Tenn., approx. 725,000 cu. yd. earthwork Levee Item No. R-48.4 A. C., Nash, Mo., Levee Station 8 plus 29—11 plus 9, along south bank of Little River headwater diversion channel in Little River Drainage Dist., Cape Girardeau Co., 1 mi. west of Nash, extend down levee approx. 2.6 mi. to St. Louis-San Francisco R. R. crossing, CIVENG 40-041-52-52. CD 6/1/44.

† Arkansas—B.A. 1/31—U. S. Eng., P. O. Box 60, Vicksburg, Miss., Arkansas River Bank stabilization works, standard revetment constr., Item R-88.2-R at Rob Roy, Lot II, Arkansas River Bank Stabilization works, Flank protection, Item D-78.74-L at Brunson's Crossing; Lot III, Arkansas River bank Stabilization works, flank protection Item D-89.41-L between Plum Bayou and Rob Roy, all Jefferson Co., Serial No. CIVENG 22-052-52-109. CD 3/9/45.

† Kansas—B.A. 1/31—Bureau Reclamation, Dpt. Interior, Kirwin, foundation constr. for Kirwin Dam, 2,150,000 cu. yd. excav., 1,396,000 cu. yd. embankment, other work, Kirwin, Spec. DC 3633. CD 11/30.

† Tex, Roma—B.A. 1/31—Bureau Reclamation, Dpt. Interior, El Paso, one lot stop logs and one lifting frame for intake structures, Mexican abutment, Falcon Dam and Power Plant, Spec. M-4561 (IBWC). CD 1/6/49.

Nebraska—RURAL DISTRIBUTION LINES—B.A. About 2/1—Cherry Todd Electric Co-operative, Valentine, 45 mi. transmission lines, 300 mi. rural distr. lines, Cherry Co. $300,000. D. O. Flahart, Rapid City, S. D. engr. CD 3/10/50.

† Montana—POWER PLANT—B.A. 2/5—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver, Colo., three switchgear assemblies, one 500 KVA, three 25 KVA transformers and three 113-ampere resistors for Canyon Ferry Power Plant, Missouri River Basin Proj. Spec. DS 3616, L. N. McClellan, c/o owner, ch. engr. CD 9/8/44.

† New Mexico—B.A. 2/5—Bureau Reclamation, Dpt. Interior, Albuquerque, construct channelization of Rio Grande from Fish and Wildlife Refuge to San Marcial, Middle Rio Grande Project, Spec. No. DC-3620.

† South Dakota—SUB-STATIONS—B.A. 2/5—Bureau Reclamation, Dpt. Interior, Huron, furnishing labor and materials, performing all work for construction of Armour Substation, Spec. DC-3626; construct Tyndall Sub-station, Spec. DC-3627, Transmission Div., Missouri River Basin Proj.

† S. D., Rapid City—SEWAGE PLANT—B.A. 2/5—U. S. Eng., 1709 Jackson St., Omaha, Neb., sewage plant expansion at Rapid City Air Force Base, Inv. 52-34. CD 1/4.

▲† Tex., El Paso—AIR BASE BLDGS., etc.—B.A. 2/5—U. S. Eng., Box 1538, Albuquerque, N. M., 6 oil storage bldgs., Approx. $500,000; 6 ammunition storage igloos, Approx. $250,000; 3 gas and service stations, allied facilities. Approx. $500,000; 6 battalion headquarters bldgs., concrete frame, Approx. $300,000; 6 motor repair shops, Approx. $400,000; six 105-man concrete frame, masonry panel walls barracks, Approx. $1,000,000; six 165-man concrete frame, masonry panel walls barracks. Approx. $1,500,000; nineteen 225-man concrete frame, masonry panel barracks, Approx. $10,000,000, Serial No. 29-005-52-10. Extended date. CD 1/4.

† Tex., Randolph Field—GCA FACILITIES—B.A. 2/12—U. S. Eng., 606 Santa Fe Bldg., Galveston, GCA facilities, incl. 3-phase, 4 fire electric service, etc., Inv. ENG 41-243-52-39. $90,000. CD 1/8.

† Tex., Randolph Field—MOTOR POOL PARKING, etc.—B.A. 2/5—U. S. Eng., 606 Santa Fe Bldg., Galveston, 33,000 sq. yd. rein.-con. motor pool parking area and drainage, Inv. No. Eng 41-243-52-43. $100,000. CD 5/2/51.

† Tex., Austin—WATER LINES—B.A. 2/6—U. S. Eng., 606 Santa Fe Bldg., Galveston, water lines and supply, Inv. No. Eng 41-243-52-46. $145,000. Extended date. CD 12/18.

Tex., DeKalb—B.A. 2/15—City, c.i. water lines, appurtenances, $70,000. Wisenbaker, Fix & Assoc., 110½ S. Bois d'Arc St., Tyler, engrs.

Tex., DeKalb—B.A. 2/15—City, some sanitary sewer lines, disposal plant unit, $85,000. Wisenbaker, Fix & Assoc., 110½ S. Bois d'Arc St., Tyler, archts. engrs.

† Tex., Laredo—RUNWAY, TAXIWAY, etc.—B.A. 2/19—U. S. Eng., 606 Santa Fe Bldg., Galveston, runway and taxiway extens. Approx. $150,000; high and medium intensity lighting, $70,000, Inv. No. Eng 41-243-52-45, for Laredo Air Force Base. CD 1/8.

BIDS ASKED—BUILDINGS

Ia., Britt—HOSPITAL—B.A. In February—Bd. Supervs. Hancock Co., Garner, 1 story, bsmnt., 46x223 ft., Hancock Memorial Hospital. Charles Altfillisch, Decorah, archts.

Tex., Gilmer—HOUSING—B.A. 2/1—Gilmer Housing Auth., Gilmer, 15 brick veneer duplexes for total 30 housing units for Whites, on Quitman Hy., $300,000; 15 brick veneer duplexes for total 30 low-cost housing units for Negroes, Bellview Addn. on Glenwood Rd., $300,000. CD 3/30/50.

▲† Okla., McAlester—MAGAZINES, STOREHOUSES, etc.—B.A. 2/5—U. S. Govt., Naval Ammunition Dpt., c/o Ted Rimer, Capt., Commanding Officer, Archt.-Constr. Div., Pub. Wks. Office Bldg. 16, New Orleans, La., Contr. 1, eighty-three 25x80 ft., high explosive magazines, $6,500,000; Contr. 2, thirty-four 50x200 ft. storehouses, $4,950,000, Plans deposit $100 each; Contr. 3, two hundred eleven 50x100 ft. smokeless powder magazines, $5,387,960; Contr. 4, twenty-eight 20x25 ft. fuse and detonator magazines, incl. clearing, grubbing, roads, railroads water lines, fire alarm sys., and other incidentals, $2,250,000, Plans deposit $90 each. Bailey & Bozalis, 1216 Colcord Bldg., Oklahoma City, archts. Benham Eng. Co., American Natl. Bank Bldg., Oklahoma City, engr. CD 12/18.

▲ Tex., Harlingen — HOUSING — B.A. 2/5 — Harlingen Housing Auth., Harlingen, 50 one to four-bedroom housing units, $375,000; 52 one-bedroom housing units, $368,000; 48 three-bedroom housing units, $383,000. Bid date changed. Cocke, Bowman & York, 1220 W. Harrison St., archts. CD 1/4.

Mo., St. Louis—SCHOOL—B.A. 2/6—Bd. Educ., V. Harry Rhodes, comr. School Bldgs., 911 Locust St., Zone 1, Nottingham School, 4920 Ivanhoe Ave., $715,000; branch addn. to Marshall School, 4342 Aldine Ave., $111,000. CD 8/10.

▲ Mo., Kansas City—HOUSING—B.A. About 2/15—Kansas City Housing Auth., Forest D. Byars, chn., City Hall, Zone 6, 462 Negro housing units, Theron B. Watkins Homes, 12-14 Sts., Paseo to Woodland Sts. $5,628,850. CD 12/4.

Tex., Mexia—STEAM GENERATING PLANT—B.A. 2/26—Board for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, steam generating plant, distr. sys. at Mexia State School. $90,000. Walter G. Moore, c/o owner, superv. archt. CD 12/9/48.

▲ Tex., Texas City—REFINERY—Bids Asked—Texas City Refining Co., Texas City, new refinery units, $1,250,000; modernization existing refinery units, $1,500,000; pipe lines, storage and shop expansion. $250,000. CD 9/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Southwestern Bell Telephone Co., 1010 Pine St., St. Louis 1, Mo. Owner Builds. $300,000. repairing lines, poles, etc. southeastern Missouri through storm damage, MISSOURI.

L. P. & H. Constr. Co., Linton, Ind. CA $200,000. 75 mi. rural distr. lines, Cooper Co., MISSOURI. Co-Mo. Electric Co-operative, Tipton, Mo. CD 12/5.

Rural Telephone Co., Elaine, Ark., Owner Builds, $160,000, telephone lines, ELAINE, ARK.

▲† **Western Contg. Co.**, 400 Benson Bldg., Sioux City, Ia. LB $2,228,354, earthwork, stage 2, Oahe Reservoir Proj., Inv. 52-48, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Jan. 9. CD 11/26.

OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City, Zone 5.

Gragg Constr. Co., Henryetta, Okla., CA. $174,949, est. $161,536, four concrete, steel bridges, U. S. 75, south of Okmulgee, Okmulgee Co.;

J. A. Raines, Manhattan Bldg., Muskogee, Okla., CA. $119,042, est. $102,514, concrete, steel bridge, S.H. 20 west of Skiatook, Osage Co.;

Oklahoma Paving Co., 4400 N. Portland St., Oklahoma City, Okla., CA. $173,473, est. $139,839, 2 concrete, steel bridges U. S. 49, south of the Delaware Co. line, Adair Co.;

M. E. Gillioz, Monett, Mo., CA. $198,756, est. $203,039, 4 concrete, steel grade separations, U. S. 66 By-pass in Tulsa, Tulsa Co. Grand total $666,220. Bids Jan. 8, Awarded Jan. 9. CD 12/28.

▲ **OKLAHOMA**—State Hy. Dpt., Capitol, Oklahoma City, Zone 5.

Broce Constr. Co., Woodward, Okla., CA. $179,189, est. $174,482, asphaltic stabil. base, bit. surf. 7.905 mi. U. S. 64, west of Boise City, Cimarron Co.;

G. & I. Constr. Co., Meeker, Okla., CA. $149,819, est. $145,852, asphaltic stabil. base, bit. surf. 6.246 mi. S.H. 11, west of Medford, Grant Co.;

Layman & Sons, Riverside Dr., Tulsa, Okla., CA. $457,720, est. $459,975, b. conc. 2.392 mi. U. S. 66 By-pass Tulsa Co.;

Hunter Constr. Co., Ada, Okla., CA. $85,748, est. $90,470, b. conc. 1.85 mi. S.H. 19, west of the Garvin Co. line, Grady Co.;

Oklahoma Constr. Co., Barnes Bldg., Muskogee, Okla., CA. $202,612, est. $228,111, grading, drainage 7.601 mi. S.H. 20 west of Skiatook, Osage Co.;

Gaines & Sons, Miami, Okla., CA. $93,726, est. $102,740, grading, drainage 1.727 mi., one bridge S.N. 10 east of Miami, Ottawa Co.;

W. E. Steelman, 2800 N. E. 4 St., Oklahoma City 4, Okla., CA. $155,404, est. $150,671, asphaltic stabil. base and bit. surf. 7.655 mi. S.H. 58, west of Fairview, Major Co.;

W. E. Logan & Sons, Barnes Bldg., Muskogee, Okla., CA. $545,187, est. $567,822, grading, drainage 7.542 mi. U. S. 271, northeast of Talehina, LeFlore Co.;

Lyles & Buckner, Surety Bldg., Muskogee, Okla., CA. $448,943, est. $450,569, c. conc. 3.284 mi. U. S. 62 west of Okemah, Okfuskee Co.;

Standard Paving Co., 2119 E. 11 St., Tulsa, Okla., CA. $475,155, est. $452,482, c. conc. 6.02 mi. U. S. 75, south of Okmulgee, Okmulgee Co.;

S. E. Evans Constr. Co., 2914 North "O" St., Fort Smith, Ark., CA. $257,354, est. $312,064, grading, drainage 6.02 mi. U. S. 75, south of Okmulgee, Okmulgee Co. Grand total $3,050,857. Bids Jan. 8, awarded Jan. 9. CD 12/28.

▲ **TEXAS**—State Hy. Comn., Austin,

Tecon Constr. Co., Inc., 1201 Main St., Dallas, Tex., CA. $1,186,034, roadbed tr., c. conc. paving, flexible base shoulders 7.854 mi. Hy. U.S. 67. Proj. FI 800 (7), Hunt and Hopkins Counties. Bids Dec. 11, awarded Dec. 17. CD 12/14, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,

Uvalde Constr. Co., P.O. Box 3027, Dallas, Tex., CA. $620,136, wid'n., c. conc. pavement and flexible base U.S. Hy. 75, Proj. C 47-4 and 5- 9 and 15, Collin Co.;

H. B. Zachary Co., P.O. Box 2570, San Antonio, Tex., CA. $731,318, flexible base, c. conc. pavement wid'n. and hot mix b. conc. 13.954 mi. U.S. 75, Proj. C 47-2 and 3- 25 and 17, Grayson Co. Bids Nov. 14. CD 11/20, under LB.

Marvin Brown, Box 14117, Houston, Tex., LB $150,931, est. $125,000. 27 blocks concrete paving, 8 blocks alley paving and street imprvs., BAY CITY, TEX. Town, Bay City, Tex. Bids Jan. 3. CD 12/19.

† **United Enterprises, Inc.**, 2845 N. Roman St., New Orleans, La., CA. $567,000. records and processing bldg., Inv. No. Eng. 41-243-52-19, LACKLAND AIR FORCE BASE (Br. San Antonio), TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Jan. 4. CD 1/8, under LB.

City, Lubbock, Tex. cancelled bids to have been opened Jan. 22, street paving, 6 in. caliche base, asph. topping, 8,370 lin. ft. concrete curb and gutters, LUBBOCK, TEX. $75,000. CD 12/19.

† **U. S. Govt.**, c/o Contrg. Officer, Randolph Air Force Base, Randolph Field, via San Antonio, Tex. cancelled bids to have been opened Dec. 7 and indefinitely postponed, converting 3 bldgs. from barracks to HOSPITAL WARDS, Serial No. 41-606-52-5. RANDOLPH FIELD, TEX. Est. $350,000.

▲ † **Montgomery Electric Co.**, 2375 N.W. Thurman St., Portland, Ore. LB $417,417, Schedule 1; L.B. $405,682, Schedule 3;

Smith Bros., Vancouver, Wash. LB $834,705; Schedule 2, Hot Springs-Anaconda 230 kv line, Inv. 6229, Sanders, Lake, Missoula, Granite, Powell and Deer Lodge Counties, MONTANA. Bonneville Power Admin., 827 N.E. Oregon St., Portland, Ore. Bids Jan. 7.

Springfield Boiler Co., 1901 E. Capitol St., Springfield, Ill., CA, $132,616, Heating PLANT, incl. new boiler with 55,000 lb. per hr. steam generating unit LARAMIE, WYO. University of Wyoming, Laramie, Wyo. Awarded Jan. 3. CD 11/7.

COLORADO—State Hy. Dpt., 518 State Office Bldg., Dever,

Peter Kiewit Sons Co., 1950 S. University Ave., Denver, Colo., LB, $347,476, est. $382,788 grading, structures and oil processing 7.368 mi. State Hy. No. 14, between Fort Collins and Ault, Colo. Proj. S0024 (3), Unit 1, Fort Collins and Ault, Larimer and Weld Counties;

Dominic Leone Constr. Co., Trinidad, Colo., LB, $67,468, est. $79,651, grading, stabilization, surf., structures, road mix oil processing 2.798 mi. on State Hy. No. 52 between Fort Morgan and New Raymer, Colo. Proj. S 0029 (1), Morgan Co. Bids Jan. 8. CD 12/28.

COLORADO—State Hy. Dpt., 518 State Office Bldg., Denver,

Lowdermilk Brothers, 1950 W. Dartmouth Ave., Denver, Colo., LB, $126,993, est. $254,803, grading, structures stabilization and oil processed surf. 2.222 mi. Colo. Proj. S 0120 (1); seal coat 5.046 mi. Colo. Proj. 0122 (4), grading, structure, oil surf, and seal coat 7.623 mi. Colo. Proj. S 0122 (5), Alamosa, Saguache and Rio Grande Counties. Bids Jan. 9. CD 1/7.

† **NEW MEXICO**—Bureau P. Rds., Dpt. Commerce, Santa Fe.

J. F. Byrd, Los Alamos, N. M., LB $186,951. Forest Highway Proj. 37-C4, 5.697 mi. James Canyon, Otero Co. Bids Jan. 3. CD 12/18.

BUILDINGS

LOW BIDS AND CONTRACTS

Merle-Jung, Inc., 5555 W. Park St., St. Louis 10, Mo. CA 1 story, 81x121 ft., steel, concrete, FACTORY, 400 Humboldt Ave., ST. LOUIS, MO. Food Equipment Corp., 400 Humboldt St., St. Louis 15, Mo.

C. Rallo Contg. Co., Inc., 5000 Kemper Court, St. Louis 9, Mo. CA 1 story, 90x100 ft., brick, steel, concrete OFFICE, 1 story, 70x245 ft. WAREHOUSE, Arsenal St. west of Hereford St., ST. LOUIS, O. Owner, c/o Julius E. Tarling, archt., 2807 N. Grand Blvd., St. Louis 7, Mo. CD 12/14, under LB.

George L. Cousins Contg. Co., 875 N. Skinker Blvd., St. Louis 5, Mo. LB $334,900. general contract brick, concrete Adolphus Busch SCHOOL, 5924 Holly Hills Ave., ST. LOUIS, MO. Bd. Educ., V. Harry Rhodes, comr. School Bldgs., 911 Locust St., St. Louis 1, Mo. Bids Jan. 8. CD 12/12.

▲ **V. & M. Contg. Co., Inc.**, 4030 Chouto St., St. Louis, Mo. CA $1,500,000. Klapmeyer Gardens, twenty-five 300x1,320 ft. eight unit APARTMENT BUILDINGS, 100 acres, incl. sewerage sys., 135-137 Sts. on U.S. 71, near Grandview Airport, KANSAS CITY, MO. Ray M. Klapmeyer, Martin City, Mo.

Frank J. McClure, 808 Good St., Dallas, Tex., CA. Approx. $85,000. Oil Core PROCESS and STORAGE BLDG., DALLAS, TEX. Atlantic Refining Co., Atlantic Bldg., Dallas, Tex.

▲ **Fort Worth Wholesale Merchandise Co.**, 200 Houston St., Fort Worth, Tex., Owner Builds. $600,000. 225 x 325 ft. rein.-con. 2nd floor addn. to WAREHOUSE, 100 W. Vickery St.; $600,000 220 x 400 ft. rein.-con., steel warehouse 300 W. Vickery St.; Approx. $800,000; one 175 x 250 ft., and one 195 x 225 ft. rein.-con. warehouses, 400 and 400-A W. Vickery St., FORT WORTH, TEX. Grand total $2,000,000.

Brace & Carruth, 705 Garden Oaks, Houston, Tex., Owner Builds. Approx. $350,000. 35 DWELLINGS, HOUSTON, TEX. CD 1/7.

MacGregor Investment Co., c/o Earl A. Gregg, Overbrook Corp., c/o P. C. Stewart, 5308 Carrolton St., Houston, Tex. Owner Builds. Approx. $365,000, ½ of Proj. 1. 50 DWELLINGS, HOUSTON, TEX. CD 1/4.

Tellepsen Constr. Co., 1710 Telephone Rd., Houston, Tex., CA. $108,000. PLANT, HOUSTON, TEX. Empire Bag & Burlap Co., 2010 Canal St., Houston, Tex. CD 1/8.

Aransas Co. Independent School Dist., Rockport, Tex. cancelled bids to have been opened Jan. 22, HIGH SCHOOL, ROCKPORT, TEX. est. $325,000. CD 12/26.

▲ **H. B. Zachry Co.**, Box 2570, San Antonio, Tex., LB $1,928,000. 400 patient tuberculosis HOSPITAL, SAN ANTONIO, TEX. State of Texas, Bd. for State Hospitals & Special Schools, 45 and Lamar Sts., Austin, Tex. Bids Jan. 10. CD 11/14.

▲ **Carbide & Carbon Chemicals Co.**, Texas City, Tex. Own Forces. $3,350,000. PLANT unit for production of polyethylene plastic resin, TEXAS CITY, TEX. CD 11/1/50.

F. J. Kirchhof Constr. Co., 700 Lawrence St., Denver, Colo., CA, $300,686, brick CHURCH, DENVER, COLO. Parish of St. John's, E. 5 Ave. and Josephine Sts., Denver, Colo. John K. Monroe, 400 Security Life Bldg., Denver, Colo., archts. Awarded 1/6.

Platt Rogers, Inc., 1530 W. 13 Ave., Denver, Colo., LB $536,418, 1 story 80,000 sq. ft. WAREHOUSE, PUEBLO, COLO. Associated Growers of Colorado, Inc., 1400 W. 3 St., Denver, Colo. Bids Jan. 9. CD 12/28.

▲ **The Austin Co.**, M & M Bldg., Houston, Tex., CA. Approx. $1,650,000. three story, bsmnt. DEPARTMENT STORE. ALBUQUERQUE, N. M. Federated Department Stores, Inc., 1440 Broadway, New York, N. Y. CD 1/9.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

Calif., Los Angeles—B.A. 2/5—Bd. Supervs., Los Angeles Co., Hall of Records, Imprv. Alameda St., Santa Fe to Dominquez Sts. $275,000. S. R. Kennedy, engr. CD 11/13.

† **Wash., Tacoma**—PLANT—B.A. 2/5—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, meat-cutting plant, A.I.O. warehouse and shop at McChord Air Force Base, Inv. 52-41, $175,000. Plans deposit $25. Jensen & Mills & D. M. Tompkins, Tacoma, Wash., archts. CD 11/5.

▲† **Wash., Tacoma**—DORMITORY, etc.—B.A. 2/5—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, two 3 story, 37x200 ft. airmen's dormitory, one 3 story, 37x200 ft. WAF dormitory and one 119x144 ft. mess and administration bldg., all masonry, Eng. 45-108-52-126, Approx. $1,000,000. Plans deposit $50. CD 11/5.

▲† **Wash., Fort Lewis**—MOTOR POOLS—B.A. 2/6—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, motor pools for permanent troop facilities in Regimental Areas 1 and 2, Inv. 52-111. Approx. $1,000,000. Extended date. Harmon, Pray & Detrich, Lloyd Bldg., Seattle, 1, Wash., archts. CD 12/14.

BIDS ASKED—BUILDINGS

Calif., San Pablo—HOUSING—B.A. 2/5—City of San Pablo Housing Auth., P. O. Box 118, 100 unit housing Project CA1 45-1. $660,000. Plans deposit $35. John C. Warnecke, Financial Center Bldg., Oakland, archt. CD 10/26/50.

Calif., Chico—SCHOOL—B.A. 2/14—Bd. Educ., Chico, Chico Junior High School. CD 8/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IDAHO—State Hy. Dpt., Boise,

Goodfellow Bros., Wenatchee, Wash., LB, $235,300, constr. 1.34 mi. road and 200 ft. bridge across Coeur d'Alene River, Shoshone Co. Awarded Dec. 21. CD 1/22/46.

† **R. P. Shea Co.**, Indio, Calif., CA, $690,785, est. $872,400, earthwork and structures for reservation levees, Lower Colorado River District, Colorado River Front Work and Levee System Proj., Spec. DC 3587, ARIZONA, CALIFORNIA and NEVADA. Bureau Reclamation, Dpt. Interior, Yuma, Ariz. Bids Dec. 4, awarded Jan. 5. CD 12/12, under LB.

▲ † **TGK Constr. Co.**, Security Bldg., Phoenix, Ariz., LB, $692,500, est. $1,000,000. BARRACKS and facilities, Litchfield Park, Spec. 30847 GOODYEAR, ARIZ. Dpt. Navy, Eleventh Naval Dist., San Diego, Calif. Bids Jan. 8. CD 12/11.

Inland Steel Co., 38 S. Dearborn St., Chicago, Ill., CA, $295,900;

Columbia Steel Co., 2345 N.W. Nicolai St., Portland, Ore. CA $295,900, steel piling for The Dalles Dam, Civeng 35-026-52-127, Wasco Co., OREGON. U. S. Eng., Pittock Block, Portland, Ore. Awarded Jan. 8. CD 1/4, under LB.

Joe D. Miller, 2002 Monterey St., Bakersfield, Calif., LB, $115,412, sanitary sewer imprvs. in El Camino Tract, BAKERSFIELD, CALIF. City Council, City Hall, Bakersfield, Calif. Bids Jan. 7. CD 12/18.

BUILDINGS

LOW BIDS AND CONTRACTS

Trousdale Constr. Co., 650 N. Sepulveda Blvd., Los Angeles, Calif., CA. $500,000. five 2-story frame, stucco APARTMENTS, Hy. 91, south of LAS VEGAS, NEV. Nevada Apartments, Inc., 650 N. Sepulveda Blvd., Los Angeles, Calif. R. W. Woodbury, 1957 Selby Ave., Los Angeles, Calif., engr.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska**—B.A. 1/31—Bureau Reclamation, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. cars Palmer, one 7.08 ft. by 9 ft. fixed wheel gate leaf; one 7.08 ft. x 9 ft. fixed wheel gate frame; one frame anchorage for 7.08 ft. x 9 ft. fixed wheel gate for the surge tank of the pressure tunnel, Station 255 plus 30 Eklutna Proj. Inv. No. DS 3628.

† **Alaska**—CONCRETE AGGREGATES, etc.—B.A. 2/6—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, furnishing wet-mixed concrete, aggregates, grout and other allied materials, approx. 55,000 cu. yds. Fort Richardson; approx. 105,000 cu. yds. Elmendorf Air Force Base, ENG 95-507-52-44. Plans deposit $10. CD 11/16.

BIDS ASKED—BUILDINGS

† **Alaska**—POWER PLANT—B.A. 1/31—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing one variable diameter penstock for Eklutna Power Plant, Eklutna Proj. Inv. No. DS-3621.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † **Denali Constr. Co.**, Anchorage, Alaska, LB $2,108,000, est. $2,174,706, steel trusses for automotive facility S95-507-52-10, Elmendorf Air Force Base, ALASKA. U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska. Bids Jan. 8. CD 12/3.

U. S. POSSESSIONS

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Nordberg Mfg. Co.**, 3073 S. Chase Ave., Milwaukee 7, Wis., CA. Approx. $250,000, furnishing, installing diesel engine generating units, Serial No. ENG 08-123-52-63, Ramey Air Force Base, AQUADILLA, PUERTO RICO. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Nov. 21. CD 10/15.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Ottawa—HANGAR—B.A. 1/29—R. P. Opie, engr., Defence Constr. Ltd., 441 Queen's Quay W., Toronto, 2B, Ont., structural steel hangar at R.C.A.F. Station, Uplands, near here, Job 1760, Approx. $800,000. Plans deposit $100.

▲ **Ont., Trenton**—HANGAR—B.A. 1/29—Defence Construction (1951) Ltd., 441 Queen's Quay W., Toronto, structural steel hangar at air base to replace one burned down recently, $1,000,000. Plans deposit $100. CD 7/26.

BIDS ASKED—BUILDINGS

Yukon Territory, Whitehorse—HOUSING—Bids Asked—W. J. Milhausen, engr., c/o Defence Constr., Ltd., 440 Kensington Bldg., Winnipeg, Man., 38 prefabricated bldgs. incl. 75 housing units, $450,000. Plans deposit $50. Bids 12/18 rejected. CD 11/30.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Western Canada Hardware Ltd., 905 Second Ave., Lethbridge, Alta., CA, $46,283, 8050 ft. c.i. pipe, filters and adapters, LETHBRIDGE, ALTA. Municipality, Lethbridge, Alta. Bids Dec. 14. CD 12/6.

Baldasaro & Sons, 991 Copeland St., North Bay, Ont. CA, $225,000, water works plant at Air Force Base, reservoir, pump house, water mains, NORTH BAY, ONT. Defence Constr. (1951) Ltd., 441 Queen's Quay W., Toronto, Ont. Bids Dec. 4. CD 11/21.

Grant Contg. Co. Ltd., 26 Queen St. E., Toronto, Ont., LB, $143,500, est. $100,000. 2,374 ft. Lake Front Sanitary Interceptor Sewer, in east end of TORONTO, ONT. City, City Hall, Toronto, Ont. Bids Jan. 8. CD 1/2.

Municipality, Ste. Genevieve De Pierrefonds, Que., rejected bids Oct. 1, filtration plant, water intake, etc., STE GENEVIEVE DE PIERREFONDS, QUE. Est. $500,000. Will re-advertise. CD 9/26.

Mobec Ltd., 466 St. Vallier St., Quebec City, Que., CA $175,000, alterations, extension to steam distr. sys. for central heating plant at CARDE development, VALCARTIER, QUE. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. J. P. McAndrew, c/o owner, engr.

BUILDINGS

LOW BIDS AND CONTRACTS

Poole Constr. Co. Ltd., 10503 109 St., Edmonton, Alta., CA, $115,000, 2 story, 52x52 ft. YARD OFFICE, EDMONTON, ALTA. Canadian National Rys., J. R. McMillan, engr., Edmonton, Alta.

Shaw Constr. Ltd., 530 Vidal St., Sarnia, Ont., CA, Approx. $150,000, 1 story, 30x40 ft., brick, concrete PUMP HOUSE and brick UTILITY bldg., Oxford St., LONDON, ONT. Imperial Oil Ltd. (Sarnia Products Pipeline Co. Ltd), 56 Church St., Toronto, Ont.

Russell Constr. Co. Ltd., Harbor Comm. Bldg., Toronto, Ont., CA, $450,000, HOUSING DEVELOPMENT incl. 60 single family units, NORTH BAY, ONT. Central Mortgage & Housing Corp., 441 Queen's Quay W., Toronto, 2B, Ont. Bids Dec. 13, awarded Jan. 8. CD 12/5.

A. S. Petersen Ltd., 1313 Wellington St., Ottawa, Ont., CA, Approx. $200,000, 6 bldgs. 12 HOUSING units, sewers, water mains, laterals, and roads at R.C.N. Station at south Gloucester, near here, OTTAWA, ONT. Central Mortgage & Housing Corp., 441 Queen's Quay W., Toronto, 2B, Ont. Bids Dec. 18. CD 12/4.

M. Sullivan & Son Ltd., 234 Elgin St., Arnprior, Ont., CA, $225,000, 40/50 Vehicle Garage-Tank Hangar 2, PETAWAWA, ONT. Defence Constr. Ltd. 441 Queen's Quay W., Toronto, 2B, Ont. CD 11/26. under LB.

▲ **G. Archambault Ltee**, 726 Atwater Ave., Montreal, Que., CA, Approx. $2,000,000, 200 army HOUSING units between Gomin and Fallon Rds., STE FOYE, QUE. Central Mortgage & Housing Corp., 1247 Guy St., Montreal, Que. Bids Nov. 13. CD 11/9.

PROPOSED PROJECTS

WATER SUPPLY

Ariz., Mesa—City, water supply, incl. pumping station and water mains, $536,000.

Colo., Denver—Denver Realty Assoc. Co., 1712 Welton St., water distr. sys. at Bow Mar Subdivision, $200,000. Howard Lane, 8025 W. 12 Ave., Littleton, consult. engr.

▲ **Ga., Atlanta**—City c/o Waterworks Dpt., City Hall, feeder mains and 2 m.g. storage tank in Kirkwood Area, $1,600,000. CD 11/22/46.

Ill., Streator—Northern Illinois Water Corp., W. V. Weir, pres., c/o 6600 Delmar Blvd., University City 5, Mo., WW sys. imprvs., extensions, Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago, Ill., consult. engrs. CD 11/1.

Neb., Lincoln—City, City Hall, construction to increase water supply. $500,000. D. L. Erickson, city engr.

S. D., Rapid City—City, sewer lines extens. $580,000. Claude Bangs, city engr.

Tex., Weslaco—City, voted bonds Jan. 3, waste sewage disposal plant. $275,000. Sigler, Clark & Winston, Weslaco, consult. engrs.

▲ **Wyo., Casper**—City, expansion water sys., $1,500,000, Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs.

SEWERS, WASTE DISPOSAL

▲ **Calif., Los Angeles**—Los Angeles County Sanitary Dist. 21, 2020 Beverly Blvd., $2,600,000 bond election Feb. 5, sanitary sewer lines, Pomona. A. M. Rawn, c/o owner, engr.

Calif., San Pablo—San Pablo Sanitary Dist., 2511 San Pablo Ave., $400,000 bond election Feb. 5, outfall sewers. Phil Jones, 2511 San Pablo Ave., consult. engr. CD 1/8/47.

Conn., New London—City, P. Wks., Dpt., City Hall, sanitary sewers, repaving, draining Bank St., Garibaldi Park area. $700,000. CD 9/12.

Ill., Paris—City, storm and sanitary sewers, $600,000. CD 7/27/46.

Ind., Greenwood—Town, Bd., Trustees, H. M. Mitchell, chn., Greenwood, 1 story 27x40 ft., brick, concrete block sewage treatment plant and intercepting sewers sludge beds, grit chamber, 2 raw sewage pumps, sludge pumps, clarifiers, sludge collecting equip., well and pump, $300,000. Henry Steeg & Assocs., 2331 N. Meridian St., Indianapolis, Zone 5, consult. engrs.

▲ **Mass., Boston**—State, Metropolitan Dist. Comn., Sewerage Div., 20 Somerset St., sewerage treatment for sect. south of Charles River, $18,300,000; sewerage treatment plant on Deer Island, Boston Harbor to take care of sewerage in northern sewerage dist., $31,500,000. Charles A. Maguire & Assoc., 294 Washington St., Boston, consult. engrs. CD 11/5.

Wash., McCleary—City, City Hall, sewage disposal sys. $200,000. A. K. Stillman, Olympia, Wash., consult. engr. CD 10/17.

Ont., Burlington—Council, Mayor E. W. Smith, imprv., exten. sewerage sys. $600,000. E. R. Swift, Municipal Bldg., Burlington, engr. CD 11/9/43.

STREETS AND ROADS

▲ **Ill., East St. Louis**—City, c/o City Council City Hall, Missouri Ave. and Main St., street and highway imprvt. program, incl. $5,685,000 expressway from eastern terminus of East St. Louis Veterans Memorial Bridge to point north of city junction of U. S. Routes 40, 6 and Alternate 67; resurf. St. Clair Ave. and grade separation and Baugh Ave., $1,500,000. resurf. State St., 10 St. to city limits, $400,000. (A 20 year $12,022,000 program).

Ia., Davenport—Scott Co., Court House, road Imprvs. $298,427, Richard Martens, Davenport co. engr.

Ky., Louisville—City, City Hall, wid'n. Western and Algonquin Parkways, $410,000; linking Oak St. and Catherine St. with Virginia Ave., Mary and Dumesuil Sts., $366,000; linking Barrett and Hamilton Aves., $144,000. W. W. Sanders, city engr. CD 6/1.

Mo., St. Louis—City, Frank J. McDevitt, pres., Bd. P. Service, 304 City Hall, 12 and Market Sts., Zone 3, opening, wid'n., imprv. hy. from Wellington Court to Manchester Ave., west of River Des Peres, distance of 20 blocks and from 50 to 100 ft. wide to be known as Ellendale Ave. between Wellington Court and Canterbury and as McCausland Ave. from Canterbury to Manchester Ave., $300,000. Guy Brown, 325 City Hall, Zone 3, ch. engr. CD 1/30/46.

N. Y., Beekmantown—Town, 19.4 mi. roads, $148,300.
N. Y., Black Brook—Town, 20.5 mi. roads, $139,500.
N. Y., Chazy—Town, 30 mi. roads, $222,900.
N. Y., Clinton—Town, 17 mi. roads, $125,500. CD 1/9.
N. Y., Clinton—Town, 25 mi. roads, $189,200. CD 9/26.
N. Y., Ellenburg—Town, 28 mi. roads, $200,400.
N. Y., Gouverneur—Town, 14.3 mi. roads, $164,300.
N. Y., Hammond—Town, 13.9 mi. roads, $130,000.
N. Y., Hermon—Town, 13.2 mi. roads, $136,250.
N. Y., Hopkinton—Town, 30.93 mi. roads, $303,000.
N. Y., Lawrence—Town, 30.95 mi. roads, $285,000.
N. Y., Lisbon—Town, 49.05 mi. roads, $460,800.
N. Y., Louisville—Town, 13.85 mi. roads, $145,000.
N. Y., Macomb—Town, 10.9 mi. roads, $101,700.
N. Y., Massena—Town, 18.9 mi. roads, $206,000.
N. Y., Mooers—Town, 20 mi. roads, $140,000.
N. Y., Morristown—Town, 19.95 mi. roads, $191,700.
N. Y., Norfolk—Town, 22 mi. roads, $222,000.
N. Y., Oswegatchie—Town, 30.6 mi. roads, $327,000.
N. Y., Parishville—Town, 27.4 mi. roads, $272,000.
N. Y., Peru—Town, 29 mi. roads, $216,200.
N. Y., Pierrepont—Town, 23.35 mi. roads, $226,700.
N. Y., Plattsburg—Town, 16.5 mi. roads, $124,450.
N. Y., Potsdam—Town, 44.4 mi. roads, $456,400.
N. Y., Rossie—Town, 10.15 mi. roads, $101,500.
N. Y., Russell—Town, 25.45 mi. roads, $260,000.
N. Y., Saranac—Town, 30.1 mi. roads, $226,900.
N. Y., Schuyler Falls—Town, 16.5 mi. roads, $128,500.
N. Y., Stockholm—Town, 39.1 mi. roads, $392,000.
N. Y., Waddington—Town, 27.2 mi. roads, $275,200.

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O., Columbus—Comrs. Franklin Co., Court House, wid'n. from 16 to 24 ft. and resurf. Wilson Rd. from Broad St. to Trabue Rd., $190,000; extend sect. of Olentangy River Rd. as four-lane divided highway from W. North Broadway to Bethel Rd., $400,000. Guy H. Elbin, co. engr.

▲ O., Columbus—Comrs. Franklin Co., Court House and State Hy. Dpt., Columbus, exten. W. Long St. west from rear of Federal Bldg. along Scioto River and across Olentangy River at Spring St. bridge into the Spring-Sandusky St. interchange, $1,775,000; exten. Third St. north over railroad tracks to join Summit St. at Warren St., $2,459,000. Howard, Needles, Tammen & Bergendoff, 921 Walnut St., Kansas City, Mo., consult. engrs., Guy H. Elbin, county engr.

EARTHWORK, WATERWAYS

O., Pomeroy—City, Delmar A. Canaday, mayor, Pomeroy, repair parking lot wall in downtown sect. to protect city from high water. $162,553.

AIRPORTS

▲† Tex., Austin—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Associated Architects-Engineers, engrs.-archts., Littlefield Bldg., bombs and ammunition storage facilities. Approx. $300,000; refrigerated storage and radio landing facilities, Approx. $250,000; night outside area lighting sys., $90,000; hangar, Approx. $150,000; maintenance and repair shops, $300,000; bulk fuel storage and hydrant refueling, $100,000; plans by Fehr & Granger, 502 E. 5 St., bachelor officers quarters, officers mess and admin. bldg. Approx. $300,000; classrooms, Approx. $325,000; barracks, Approx. $1,000,000; telephone exchange, base operations bldg. units, Approx. $300,000; plans by Giesecke, Kuehne & Brooks, engrs. and archts., 121 W. 5 St., equipment storage, Approx. $100,000; water supply, Approx. $75,000; runways, taxiways extens. Approx. $1,000,000, all foregoing Bergstrom Air Force Base. CD 7/6.

▲† Tex., Harlingen—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Sigler, Clark & Winston and Baxter & Cox, Weslaco, engrs.-archts., warehouses, Approx. $1,000,000; hospital, dental clinic, base photo laboratory, Approx. $300,000; commissary guardhouse, air installations bldg. Approx. $300,000; training group headquarters bldg., base supply admin. and office bldg. Approx. $300,000; water lines, facilties, Approx. $60,0000; supersonic training bldg., radar maintenance shop, G-2, training bldg. Approx. $500,000; bachelor officers quarters, reconversion of existing barracks, Approx. $300,000; sanitary and drainage sewers, Approx. $75,000; roads, construction and paving of some military areas, Approx. $100,000; grease and oil storage bldg., ordnance area, Approx. $200,000; automotive shops, Approx. $400,000; clothing repair shop, Approx. $90,000; family housing, Approx. $300,000; cold storage unit, meat cutting plant, Approx. $90,000; base antenna farm, Approx. $75,000; aviation gas storage, Approx. $100,000; construction and paving motor pool area and gas and service station, Approx. $100,000;; maintenance docks, Approx. $60,000; medium bomber hangar, Approx. $175,000; maintenance shop, Approx. $90,000 at Harlingen Air Force Base. CD 8/28.

▲† Tex., Kelly Air Force Base—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Thomas E. Greacen & Dale S. Cooper & Assoc., 1010 Winbern Ave., Houston, consult. engrs.-archts., airmen's bar-racks, $7,000,000; air-ground facilities and warehousing, $1,000,000; small arms storage bldg. $200,000; warehouse $300,000; natural gas sys. extens., improv. $75,000; water sys., $100,000 sanitary sewers, $80,000; outside area lighting, $100,000; street and road constr., paving, $150,000. CD 6/27.

▲† Tex., Lackland Air Force Base (Br. San Antonio)—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Wirtz, Calhoun and Jackson & Dill, 500 Stuart St., Houston, storage or warehousing, Approx. $1,000,000; administrative bldgs., Approx. $500,000; plans by Irving R. Klein & Assoc., 1317 Austin St., Houston; laundry plant, $90,000, H. E. Bovay, M. Esperson Bldg., Houston, consult. engr. CD 9/14; water lines, facilities, $65,000; addnl. sanitary sewers, $80,000; road constr. and paving, $75,000; plans by Charles S. Chase, 3309 Anita St., Houston, camouflage training areas, Approx. $100,000; mess halls, Approx. $500,000; communications facilities, Approx. $100,000; barracks, Approx.$1,000,000, David C. Baer, 1202 Bissonnet St., Houston, consult. engr. on 7 latter projects. CD 7/13.

† Tex., Laredo—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Richard S. Colley & Assoc., and A. A. Leyendecker, 3204 Santa Fe St., Corpus Christi, and Blucher & Nalsmith, 1111 N. Mesquite St., Corpus Christi, jet fuel storage, Approx. $250,000; group headquarters and structural fire station barracks, Approx. $200,000; gas and servicing station, Approx. $90,000; truck fill stands, Approx. $90,000. CD 6/26.

† Tex., Victoria—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Lockwood & Andrews, engrs.-archts., Union Natl. Bank Bldg., Houston, jet fuel storage sys. $90,000; water lines, facilities, $50,000; sanitary and drainage sewers, $65,000; construction, paving of roads, $70,000; runways, $150,000; communications, telephone, academic, mess bldg. units, $300,000; motor pool area, $90,000; oil and paint storage, $175,000, all foregoing for Foster Air Force Base. CD 6/27.

Wash., Seattle—HANGAR—Pan American World Airways, 1302 4 Ave., hangar at Seattle-Tacoma Airport, $200,000. The Austin Co., 16112 Euclid Ave., Cleveland, O., consult. engr. CD 10/3.

N. B., Chatham—STEAM DISTRIBUTION SYSTEM—Govt. of Canada, Dpt. National Defence AIR, Cartier Sq., Ottawa, Ont., underground steam distr. sys., pumphouse, etc. at R.C.A.F. Station, $150,000. P. J. Mangan, 1032 Gottingen St., Halifax, N. S., engr.

▲ Ont., Trenton—DEPOT—Defence Constr. Ltd., 441 Queens Quay W., Toronto, 2B, Ont., reconstr. No. 6 Repair Depot at R.C.A.F. Station, Approx. $1,000,000. R. P. Opie, c/o owner, engr.

LATIN AMERICA

Brazil, Jundiai—Duratex S. A. Industria e Comercio, Sao Paulo, plans wallboard factory, using eucalyptus as the raw material.

Mexico, Isla Mujeres—Mexican Govt., Sria. de la Marina (Navy Dpt.) Mexico City, plans naval base $500,000. Alberto G. Pawling, c/o owner, engr.

Mexico, Peurto Marques—Mexican Govt., Sria. de Comunicaciones y Obras Publicas (Communications and Pub. Wks. Ministry) Mexico City, plans airport. $600,000.

▲ Mexico, Puerto Marques—Mexican Govt., Sria de la Marina (Navy Dpt.) Mexico City, plans port expansion. $6,000,000. Ing. Alberto J. Pawling, c/o owner, engr.

▲ Mexico, Puerto Marques—Mexican Govt., Sria. de Bienes Nacionales (National Properties Ministry) Mexico City, plans iron and steel works. $5,780,000.

▲ Mexico, Tapachula—Cia. Mexicana de Aviacion Bolivar 21, Mexico City, plans airport. $1,150,000.

PUBLIC BUILDINGS

▲ Ariz., Yuma—SCHOOL—Yuma Union High School Dist., voted $1,393,000 bonds school construction. Bowen, Rule & Bowen, 2835 Gilroy St., Los Angeles, Calif., consult. engrs.

Ark., Benton—SCHOOL—Benton School Dist. 8, Benton, plans by Weaver & Stower, Commercial National Bank, Little Rock, school, $450,000.

▲ Calif., San Diego—SCHOOLS—San Diego Unified School Dist., Linda Vista High School, $1,550,000; Pacific Beach Senior High School, $1,900,000; addns. to Pacific Beach Junior High School, $972,000. CD 11/16/50.

Calif., Victorville—SCHOOL—Victor Valley Union High School Dist. plans by Marsh, Smith & Powell, 208 W. 8 St., Los Angeles, rein.-con., stucco, frame high school, $750,000. CD 2/14/46.

Colo., Denver—HOUSING—Denver Housing Auth., 1449 Nawajo St., plans by Charles D Strong, 933 Sherman St., constr. Westwood Site Housing, incl. 260 units W. Kentucky and Ohio Aves. and S. Knox Court and S. Irving Sts., Wilson & Co., 1542 Colorado Bldg., consult. engrs. plans by Huntington & Brelsford consult. engr. and archts., 618 Insurance Bldg., Curtis Park Site Housing, incl. 450 units, brick, between 26 and 34 Sts. and Lawrence and Arapahoe Sts. CD 12/16/49.

▲ Colo., Denver—OFFICE—State, highway office bldg., $1,500,000. Temple, Buell & Assocs., 730 14 St., engrs. CD 3/18/48.

▲ District of Columbia—SCHOOL—Distr. Comrs., District Bldg., Wash., D. C., plans by M. A. Coe, Municipal Archt., Wash., D. C., school (Industrial Home) Children's Center, Laurel, Md. $1,950,000. CD 9/16/43.

▲ Fla., Bartow—SCHOOLS—Bd. P. Instruction, Polk County, Bartow, voted $6,000,000 bond for schools. CD 11/9.

▲ Ga., Atlanta—SCHOOLS—Fulton Co. Bd. Educ., Court House, plans by Bodin & Lamberson Fosyth Bldg., Russell High School addns., Approx. $300,000; plans by Stevens & Wilkinson, 157 Luckie St. N.W., Roswell High School, Approx. $400,000; plans by Armistead & Saggus, Chandler Bldg., Red Oak-Enon-Union City Colored School, Approx. $350,000.

▲ Ill., Joliet—SCHOOL—School Dist. 204, Joliet, plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Zone 6, High School and Junior College addn. $2,200,000.

▲Kan., Lawrence—SCHOOL—Bd. Educ., Lawrence, plans by Griest & Ekdahl, New England Bldg., Topeka, Senior High School. $1,600,000. CD 6/3/49.

▲ Mich., Traverse City — HOSPITAL — State, A. N. Languis, dir. State Bldg. Dpt., Lansing, plans by Swanson Associates, W. Long Lake Rd., Bloomfield Hills, brick, steel tuberculosis hospital unit, $1,000,000. CD 1/16/51.

▲ Minn., New Brighton—SCHOOL—Bd. Educ., Mounds View Consolidated School Dist. 38, R. R. Reeder, supt., plans by Haxby, Bissell & Belair, 1111 Nicollet Ave., Minneapolis, Junior-Senior High School in Arden Hills Dist. $1,000,000. CD 11/23.

Mo., St. Joseph—HOUSING—St. Joseph Housing Auth., St. Joseph, multiple dwelling unit housing. $627,760.

Mont., Glendive—SCHOOL—B. Educ., voted $550,000 bonds Dec. 18, Lincoln School addn., $400,000; 3 room Washington School addn. Cushing & Terrell, 212½ N. Broadway, Billings, archt. CD 3/20/51.

▲ Neb., Grand Island—SCHOOLS—Bd. Educ., Grand Island, $4,000,000 bond election Feb. 26, schools. Extended date. F. N. McNett, Grand Island, archt. CD 1/4/52.

▲ N. Y., New York—LIBRARY—Bd. Higher Educ., 695 Park Ave., Zone 21, plans by Lorimer & Rose, 254 W. 54 St., Zone 19, addns, alterations to main library at City College. $2,000,000. CD 1/21/44.

▲ O., Dayton—SCHOOLS—Bd. Educ., 232 N. Main St., plans by Ohler, Martin & Reed, Hulman Bldg., Cornell Heights School addn. $360,000; plans by W. C. Wertz, 3rd Natl. Bldg., McGuffey School addn., $300,000; plans by H. C. Harlan, 44 S. Ludlow St., Residence Park School addn., $415,000; plans by Hart, Igleburger & Assoc., Hulman Bldg., Fairview High School addn., $720,000; plans by Freeman A. Pretzinger, 1155 Reibold Bldg., Patterson Park School, $535,000; plans by Rial T. Parrish, 940-45 U. B. Bldg., school, Wright Ave. and E. Fifth St., $475,000; plans by W. Ray Yount, 419 Third Natl. Bldg., Auburndale-Stein School, $535,000. CD 12/6.

▲ O., Toledo—SCHOOLS—Bd. Educ., Southard Ave., plans by Sanzenbacher, Morris & Taylor, Erie Bldg., gymnasium addn. at Scott High School, $500,000; plans by Bellman, Gillette & Richards, 618 Jefferson St., gymnasium addn., Waite High School, $500,000; plans by Peterson, Hoffman & Grow, Spitzer Bldg., gymnasium addn., at Libbey High School, 110x80 ft. court, etc. $500,000. CD 11/23/49.

▲ Pa., Corry—HIGH SCHOOL—Junior School Dist. of Corry, 110 Spring St., plans by Hunter, Caldwell & Campbell, 3601 5th Ave., Altoona, Junior-Senior School, $2,090,000. CD 7/26/46.

▲ R. I., Providence—PARKING GARAGE—Providence City Council, City Hall, 3 story open deck parking garage, north edge of downtown shopping center, $1,000,-000. Ramp Building Corp., 230 Park Ave., New York 17, N. Y., consult. engrs. CD 11/17/50, under Unclassified.

▲ Tex., Archer City—HOUSING—Archer City Housing Auth., Archer City, plans by John Astin Perkins & Assoc., 2203½ Cedar Springs Rd., Dallas, 160 housing units. $1,425,000. CD 10/5/50.

Tex., Fort Sam Houston—STORAGE, etc.—U. S. Eng., 606 Santa Fe Bldg., Galveston, addnl. storage, $85,-000; troop housing, $750,000. Halsey & Royer, Transit Tower Bldg., San Antonio, consult. engrs. CD 7/6.

Tex., San Antonio—HIGH SCHOOL—Edgewood Independent School Dist., H. A. Haase, pres. Bd. Trustees, 525 Cupples Rd., high school, $750,000.

▲† Tex., Victoria—HOUSING—The Housing and Home Finance Agency, 1626 K St., N. W. Wash. 25, D. C., 100 "for sale" housing units, $800,000; 100 rental housing units, $750,000, serving personnel at Foster Air Force Base.

▲Tex., Wichita Falls—HOUSING—Wichita Falls Housing Auth., Wichita Falls, plans by Boese & Harkrider, T & P Bldg., Fort Worth, Tex. 22-4, 182-unit housing. $1,365,000. CD 10/18/49.

Wash., Seattle—SCHOOL—Shoreline School Dist., N. 137 St. and Roosevelt Way, bond election Mar. 11, Woodrow Wilson Junior High School, $700,000. Mallis & DeHart, Lyons Bldg., Zone 4, Wash., archts. CD 9/28.

▲† Virgin Islands—SCHOOLS—Office of Territories, Dpt. Interior, Lester M. Marx, Contr. Officer, Dist., Engr. for Virgin islands, P. O. Box 479, St. Thomas, Virgin Islands, plans by M. A. Dyer Co., 24 School St., Boston, Mass., archt. and engr., 10 schools (new and addns.) various locations. Several millions.

▲ B. C., New Westminister—BUS TERMINAL—B. C. Electric Co., Ltd., 425 Carrall St., Vancouver, plans by Percy C. Underwood, 1264 West Pender St. Van couver, bus terminal on former Hlway School Site. $1,250,000.

Man., Portage La Prairie—MESS—Defence Constr. Ltd., 400 Kinsington Bldg., Winnipeg, trainees mess, $500,-000. W. J. Milkansen, c/o owner, engr.

▲ Ont., Hamilton—HOUSING—Central Mortgage & Housing Corp., 441 Queen's Quay W. Toronto, 500 unit housing development at Hamilton Airport area, $5,000,000. CD 6/19/45.

COMMERCIAL BUILDINGS

Calif., Claremont—DWELLINGS—Braemar Homes, Claremont, plans by Kirley D. Denney, 1135 S. Beverly Dr., Los Angeles, 59 frame, stucco dwellings, $500,-000.

▲ Calif., Los Angeles—COMMUNITY BUILDING—Jewish Centers Assn. of Los Angeles, 500 N. Vermont St., plans by Eisenshtat, Lipman & Reisbord, 1121 S. Hill St., 3 story, rein.-con. community bldg., Olympic Blvd. and Stanley St. $2,250,000.

Calif., San Diego—CHURCH—Wesley Methodist Church, c/o F. D. Harrington, archt., 440 C. St., church plant, El Cajon Blvd. $750,000.

▲ D. C., Wash.—HOSPITAL—Providence Hospital, 2 and S. Sts., plans by Faulkner, Kingsbury & Stenhouse and Maurice S. May, Ring Bldg., Wash., D. C., 8 story, brick.-con. hospital, nurses and heating plant, 12 and Valnor Sts., $7,000,000. CD 7/5.

▲ Ind., Indianapolis—HOUSING—Frederick E. Hansing & John F. Linder, Indiana Pythian Bldg., 347 homes on tract east of 34 and Shadeland Sts. Est. $5,000,-000.

Ky., Shively—SHOPPING CENTER—Geo. Settos, c/o Homer Hoyt, 6143 Woodlawn Ave., Chicago, Ill., shopping center, on Hy. 31W, $568,000.

La., Shreveport—DIAL TOOL OFFICE—Southern Bell Co., Hurt Bldg., Atlanta, Ga., dial toll office bldg., Greenwood Rd. $500,000.

Mass., Norwell—RESIDENCES—Ralph V. Bates, 188 A Hull St., Hingham, 62 residences, $558,000.

Miss., Jackson—DEPARTMENT STORE—W. F. Holmes, Jackson, department store. $565,000.

▲ N. J., Cape May Court House—RESIDENTIAL DEVELOPMENT—William H. Bright, 340 New Jersey Ave., Wildwood, N. J., plans by Edward A. L. Cox, 709 Market St., Camden, N. J., residential development in Lower Township $12,000,000.

▲ **N. J., Trenton**—STORE—Arnold Constable & Co., 5 Ave. and 40 St., New York, N. Y., department store, E. State and Montgomery Sts. $1,000,000.

▲ **N. Y., New York**—RESIDENT HALL—Cornell University Medical College, 1300 York Ave., Zone 21, 12 story student resident hall, York Ave. and E. 69 St. $2,500,000.

N. C., Raleigh—STORE—S. H. Kress & Co., 114 5th Ave., New York, N. Y., store, Fayetteville and Morgan Sts. $500,000.

▲ **O., Dayton** — HOUSING — Joseph Haverstick, c/o Haverstick Builders, Inc., Hulman Bldg., 240 single-family homes on 45-acre tract along Wilmington Pike to Smithville Rd., in Van Buren Twp. $2,640,000.

▲ **Pa., Meadville**—DORMITORY, etc.—Allegheny College, Meadville, plans by Lorimer Rich & Robbins, Conn., 215 Montague St., Brooklyn, N. Y., 2 or 3 story brick men's dormitory, $350,000; 2 story brick college classroom bldg. $350,000; field house, $300,000. CD 10/31/49.

Tex., Austin—HOSPITAL—Seton Hospital Corp., c/o Sister Basil, pres., Seton Hospital, 600 W. 26 St., plans by Kuehne, Brooks & Barr, 203 Perry-Brooks Bldg., 5 story hospital wing and boiler plant addn. $800,000.

▲ **Tex., Houston**—DWELLINGS—Brace & Carruth, 706 Garden Oaks, 50 frame, brick trim dwellings, concrete slab fdn., $475,000; 45 cedar shake, asb. siding, etc. dwellings, concrete slab fdn. $450,000; 60 frame, masonry trim, some stucco exterior dwellings, concrete slab fdn., $600,000 all foregoing in new areas of Timber Grove Manor.

▲ **Tex., Houston**—SHOPPING CENTERS—Leo F. Corrigan, Mercantile Bank Bldg., Dallas, shopping center, east of Shepherd Dr. intersection off Washington St. $1,250,000; shopping center in Sears Roebuck area on North Side, $850,000.

▲ **Tex., Houston**—DWELLINGS—Dryden Corp., 5150 Griggs St., Unit 2, 65 dwellings, in southern sect. of MacGregor Terrace, $590,000; Unit 3, 100 dwellings, concrete slab fdn., asb. siding, sheetrock, various locations; $875,000; Unit 4, 115 frame, masonry trim dwellings, concrete slab fdn. $1,035,000; Unit 5, 90 cedar shake, frame, masonry trim dwellings, concrete slab fdn., $800,000; Unit 6, 70 frame, masonry trim, some stucco dwellings, $630,000.

Tex., Houston—STORE—S. H. Kress & Co., Kress Bldg., retail store, 311 Main St. $600,000. CD 9/12.

▲ **Tex., Houston** — DWELLINGS — Southern Builders, 5200 Griggs Rd., Proj. 1, 75 dwellings, $525,000; Proj. 2, 90 dwellings, $630,000; Proj. 3, 100 dwellings, $725,000; Proj. 4, 125 dwellings, $875,000.

Ont., Dunnville—DWELLINGS—Monarch Knitting Co. Ltd., Metropolitan Bldg., Toronto, 75 dwellings. $550,000.

▲ **Que., Montreal**—OFFICE—Montreal Life Insurance Co., 625 Burnside Ave., 5 story office, Sherbrooke St. W. and Union Ave. $1,000,000. CD 4/26/60.

INDUSTRIAL BUILDINGS

▲ **Calif., Edgewater** — MILL — Pacific Coast Plywood Assn., c/o W. A. Mitchell, White Bldg., Seattle 1, Wash., plywood mill. $1,500,000.

▲ **Ill., Chicago**—SHOP—Chicago, Rock Island & Pacific R. R., W. B. Throckmorton, ch. engr. La Salle St. Station, Chicago Zone 5, shop for diesel engines in 47 St. Yard. $1,200,000.

▲ **Ill., Tuscola**—WAREHOUSE, etc.—National Petro-Chemicals Corp., Tuscola, plans by Syl G. Schmidt & Assocs., 1819 Railway Exch. Bldg., 611 Olive St., St. Louis, 1, Mo., warehouse and service bldgs., administration bldg., garage for plant. CD 7/30.

▲ **La., Westlake**—REFINERY—Continental Oil Co., Box 37, Westlake, addns. at Refinery 3. $2,000,000.

Minn., Minneapolis—DRYER HOUSE—Fleischmann Malting Co., 1717 2 St. N.E., Minneapolis, remodel dryer house. $500,000. L. Peterson & Assoc., 601 E. Ogden Ave., Milwaukee 2, Wis., consult. engrs.

▲ **N. Y., New York**—GARAGE, etc.—Henry Goelet, c/o Charles N. & Selig Whinston, archts., Grand Central Terminal Bldg., Zone 17, 31 story parking garage, 17 story office bldg., 6 Ave. and 45 St. $8,000,000.

▲ **O., Marietta**—PLANT—Remington Rand, Inc., 315 4th Ave., New York, N. Y., 100,000 sq. ft. plant addn. $1,500,000.

Pa., Meadville—FACTORY—Westinghouse Electric Corp., Union Bank Bldg., Pittsburgh, factory addn., industrial heating plant addn. $300,000.

▲ **Pa., Sharpsburg**—BREWERY—Fort Pitt Brewing Co., 16 and Mary Sts., plans by Harley, Ellington & Day, Inc., 153 E. Elizabeth St., Detroit, Mich., 7 story, concrete steel brewery addn., alterations, misc. alterations to present plant. $2,000,000. CD 9/23/49.

▲ **Tex., Galveston**—STORAGE—Parker Bros. & Co., Inc., 5303 Navigation Blvd., Houston, chemicals unit, storage, near here. $1,750,000.

▲ **Tex., Odessa**—PLANT—Phillips Chemical Co., (subsidiary Phillips Petroleum Co.) Bartlesville, Okla., elementary sulphur production plant. $1,741,000.

Tex., Pampa—PLANT—Phillips Petroleum Co., Bartlesville, Okla., gasoline distillation unit. $409,612.

▲ **Tex., Panhandle**—PLANT—Panoma Corp., Panhandle, aviation gasoline plant unit, near here. $1,022,650.

Tex., Pearland—PLANT—Regent Aircraft, Inc., P. O. Box 751, Henderson, construct 2nd plant for aircraft production line. $450,000.

▲ **Tex., San Antonio**—PLANT—Carroll B. Fulton & William H. Olmstead c/o Universal Oil Products Co., consult. engrs., 810 S. Michigan Ave., Chicago, Ill., 10,000 bbl. daily aviation gasoline capacity plant, 2 mi. east on W. W. White Rd. $11,925,000. CD 4/3/51.

B. C., Prince Rupert—STORAGE FACILITIES—Prince Rupert Fisherman's Co-operative Assn., Prince Rupert, voted bonds, cold storage facilities addn. $400,000. CD 10/24/45.

Ont., Toronto—FACTORY—Perfect Circle Co. Ltd., 175 Wicksteed Ave., plans by Wilson & Newton, 1104 Bay St., 1 story factory, Don Mills Rd. $400,000.

UNCLASSIFIED

Ill., East St. Louis—TRAFFIC SIGNAL LIGHT SYSTEM—City, c/o City Council, City Hall, Missouri Ave. and Main St., traffic signal light system, $360,000. (20 year program).

Mass., Somerville—SWIMMING POOL—State, Metropolitan Dist. Comm., Parks Div., 20 Somerset St., Boston, plans by William Lawrence Galvin, 38 Brattle St., Cambridge, outdoor swimming pool, Saxon Foss Park. $350,000. CD 12/6.

▲ **Missouri**—RURAL DISTRIBUTION LINES—Farmers Electric Co-operative, Chillicothe, 509 mi. rural distr. lines, sys. imprvs., headquarters facilities, 83 mi. tie lines. $1,535,000. Frank Horton & Co., Lamar, consult. engrs. CD 8/19/48.

N. Y., Brooklyn—COMFORT STATION, etc.—Dpt. Parks, Arsenal Bldg., New York, 1 story comfort station and playground, 1239 Prospect Pl. in St. John's Park. $200,000. Gustave Chirlian, c/o owner, consult. engr. CD 12/26/46.

Ohio—RURAL DISTRIBUTION LINES—South Central Rural Electric Co-operative, Lancaster, 12 mi. 69 kv transmission line, 27 mi. tie line, sub stations and sys. imprvs., Fairfield Co. $560,000. CD 5/12/48.

Oklahoma — RURAL DISTRIBUTION LINES — Canadian Valley Co-operative, Seminole, 249 mi. rural distr. lines near Seminole, Seminole Co. $730,000. E. R. Taylor & Assoc., 4107 AE11 St., Tulsa, consult. engrs. CD 12/21.

▲ **Oklahoma**—COMPRESSOR STATIONS, etc.—Cities Service Gas Co., Bartlesville, Okla., gas compressor stations on the line from Guymon to Blackwell Okla. and to K. C. $1,750,000; natural gas gathering lines in the Guymon gas field, Texas Co. $2,350,000. S. B. Irelan, c/o owner, engr.

Okla., Tahlequah—PARK LODGE—Planning Bd., Capitol, Oklahoma City, Zone 5, plans by Black & West, Tri State Bldg., Tulsa, Sequoyah State park lodge $250,000.

Wash., Copalis—LINES—Grays Harbor PUD, Aberdeen, two 69,000-volt lines to serve Voice of America Radio Station. $266,200. CD 9/17, under Wash., Aberdeen.

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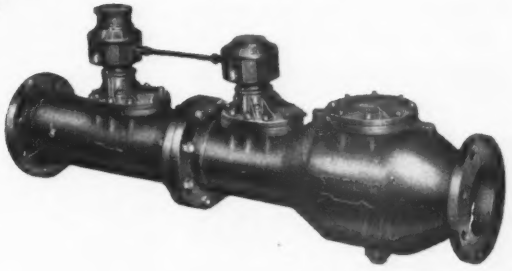

RECORDERS, 24-Hour

RECORDERS, 7-Day

INDICATORS

TOTALIZERS, Remote

BATCH CONTROLS

CONTROLS for Auto-Metered Chemical Feeds . . .

Quotations and Bulletin 312 come at your request

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DALLAS 1.....726 Reserve Loan Life Bldg.
626 Broadway.....CINCINNATI 2
101 Park Avenue.....NEW YORK 17
1932 First Avenue.....SEATTLE 1
66 Luckie Street N.W.....ATLANTA 3

CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
January 28 Connecticut
STREETS AND ROADS
January 29 Massachusetts

Mass., East Boston—PASSENGER SCREEN—B.A. 2/8—At office of Glaser & Gray, archts., 105 Newbury St., Boston, passenger screen at Logan Airport, for American Airlines, Inc., 80 Federal St., Boston, $100,000.

▲† Mass., Bedford—BUILDING FACILITIES—B.A. On or About 3/4—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, constr. building facilities, Air Defense Laboratory, incl. 2 story, bsmnt. Building A; 3 story, bsmnt. Buildings C and D; 1 story Building E; 1 story gas storage bldg. with connecting corridors, adjacent to Hanscom Air Force Base, off Wood St., Lexington, Mass., Eng. 19-016-52-33. Plans deposit $100.

BIDS ASKED—BUILDINGS

Mass., Brockton—CHURCH—B.A. about 2/1—Our Lady of Lourdes, c/o Chancery Office, R. J. Cushing D D, Lake St., Brighton, church and rectory, West and Tory Sts. CD 11/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Carrol Verge & Whipple, Inc., 370 Waconah St., Pittsfield, Mass. CA. Approx. $100,000. firing test ranges, JERICHO, VT. General Electric Realty Co., River Rd., Schenectady, N. Y. Lockwood Greene Engineers, Inc., 40 Central St., Boston, Mass., engr.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ S. & A. Allen Constr. Co., 216 Washington St., Boston, Mass. CA $2,400,000, est. $2,225,000. 172 HOUSING units, South St., Proj. 200-12, West Roxbury and Jamaica Plain, BOSTON, MASS. Boston Housing Auth., 230 Congress St., Boston, Mass. Awarded Jan. 11. CD 11/30, under LB.

The Mohawk Corp., 347 Main St., Middletown, Conn., Owner Builds, $750,000, HOUSES, Merriman Ave. and Sanford St., FARMINGTON, CONN. Irving W. Rutherford, 49 Garden St., Hartford, Conn., archt.

E & F. Constr. Co., 94 Welles St., Bridgeport, Conn., LB, $844,000, High SCHOOL, Queen St. near Rte. 6, NEWTOWN, CONN. Town, Newtown, Conn. Bids Jan. 8. CD 12/13.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
January 30 New York
STREETS AND ROADS
January 30 New York

N. Y., New York—ADMINISTRATION BLDG.—B.A. 1/29—Triborough Bridge and Tunnel Auth., Administration Bldg., Randall's Island, Zone 35, addn. to Administration Bldg., Bronx-Whitestone Bridge, Bronx Boro.

N. J., Clinton—B.A. 1/31—State Div. Purchase & Property, State House, Trenton, sewage disposal plant at Reformatory for Women. Extended date. CD 1/8.

BIDS ASKED—BUILDINGS

N. J., Mountain Lakes—SCHOOL—B.A. 1/29—Bd. Educ. of Mountain Lakes, Briarcliff Rd., school, Glen Rd., $390,680. CD 1/2.

N. Y., Baldwin—SCHOOL—B.A. 1/31—Bd. Educ., Union Free School Dist., Baldwin High School, Pershing Blvd., Milburn School. $550,000. CD 9/14.

▲ N. J., Atlantic City—HOUSING—B.A. 1/31—Atlantic City Housing Auth., 2311 Fairmount Ave., housing, Project N. J. 14-3, 122 units, Filbert St., West End Ave., Raleigh and Annapolis Aves. $1,500,000. Extended date. CD 11/28.

N. Y., Mariners Harbor—HOUSING—B.A. 2/5—New York City Housing Auth., 63 Park Row, New York, Zone 7, foundations and appurtenances for Mariner's Harbor Houses (Proj. No. NY-5-20) in area bounded by Grand View Ave., Roxbury St., Lockman Ave. and Continental Pl., Richmond Boro. Plans deposit $75. CD 6/29.

Pa., Wayne—SCHOOL—B.A. 2/5—Radnor Twp. School Dist., Wayne, grammar school at Rosemont. Approx. $300,000. W. Pope Barney & Roy W. Banwell, 1400 S. Penn Square, Phila., archts. CD 8/7.

▲ Md., Baltimore—HOUSING—B.A. 2/14 — Baltimore Housing Auth., 709 E. Edger St., Claremont Housing, thirty-six 2 story brick, block buildings, 292 units, $3,000,000. Plans deposit $100. Jamison & Marcks, 8 E. Mulberry St., archts., Whitman, Requardt & Assoc., 1304 St. Paul St., engrs. CD 9/13/50.

N. Y., New York—HOUSING—B.A. 2/19—New York City Housing Auth., 63 Park Row, Zone 38, foundations and general constr.; heating and ventilating; electric work; plumbing furnishing, erecting elevators for George Washington Houses, Proj. No. NY-5-14, Sect. 1, incl. Bldgs. 1 to 6 (inclusive) and Building A, in area bounded by 3d Ave., E. 79 St., 2d Ave., E. 99 St. and the easterly portion of the blocks by 2d Ave., E. 99 St., 3d Ave., and E. 101 St. Manhattan Boro. Plans deposit $75, $25 elevators. CD 115.

Md., Hagerstown—LIGHT PLANT—B.A. About 3/8—City, electric light plant addns. $100,000. Albert C. Wood Assoc., Inc., 1411 Walnut St., Phila., Pa., engr. CD 11/28.

Pa., Phila.—MANUFACTURING—B.A. About 3/1—Acme Lamp Mfg. Co., 336 Callowhill St., mfg. bldg. addn. Approx. $82,000. Akron & Vanderwerff, 703 Walnut St., engrs. Bids Jan. 2 rejected. CD 1/22.

SOON LETS CONTRACT—BUILDINGS

▲ Md., Hagerstown—PLANT—Fairchild Engine & Airplane Corp., Aircraft Div., Hagerstown, soon lets contract, plant addns., extension parking facilities, grading, road constr. etc., $6,952,000. Allmon Fordyce & William Hambly, 70 W. 40 St., New York, N. Y., archts., Peter A. Stobel, 70 W. 40 St., New York, N. Y., engr. CD 8/30.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Layne-New York Co., 91 Liberty St., New York 6, N. Y. LB $43,850, Contr. 1, well and pump;

Sawyer & Dalfinger, 345 Great Neck Rd., Great Neck, N. Y., LB $48,392, Contr. 2, well house and appurtenances, GARDEN CITY, N. Y. Incorporated Village of Garden City, at office E. R. Courtney, clk., Village Hall, 110 Seventh St., Garden City, N. Y. Bids Jan. 14. CD 1/2.

† William Saloy, Inc., 150-11 94 Ave., Jamaica 4, N. Y. CA. $159,754, readiness bldg., Suffolk County Air Force Base, Serial No. 30-075-52-293, WEST-HAMPTON, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Jan. 4. CD 12/28.

† Anthony P. Miller, Inc., 3333 Arctic Ave., Atlantic City, N. J., LB, $140,500, HANGARS A and B alterations, Naval Air Station, NOY 24958, Spec. 27062, ATLANTIC CITY, N. J. Dpt. Navy, P. Wks. Office, Phila. Naval Base, Phila., Pa. Bids Jan. 4.

▲ PENNSYLVANIA—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg.

Conduit & Foundation Corp., 770 S. Schuylkill Ave., Phila., Pa., CA. $4,174,791, construct 8,536 ft. divided highway of rein.-con. pavement, one plate girder and one I-beam bridge, Final sect. of Schuylkill Expressway, Montgomery Co. Bids Dec. 20, awarded Jan. 10. CD 11/28.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2.

M. J. Grove Lime Co., Lime Kiln, Md. LB $636,200, grading, drainage, wid'n. 4.99 mi. State Rte. 65, Hagerstown-Lappans Rd., Contr. W 399-615, Washington Co Bids Jan. 8. CD 1/3.

Piracci Constr. Co., Inc., 2552 Woodbrook Ave., Baltimore, Md. CA 2 level, 80x185 ft., rein.-con. parking structure, 1209-15 N Charles St., BALTIMORE, MD. Charles St. Assn., Inc., Fidelity Bldg., Baltimore, Md. Bonnett & Brandt, 605 Park Ave., Baltimore, Md., engrs.

Enterprise Electric Co., Inc., 4 W. Barre St., Baltimore, Md. LB $266,500, electric distr. sys., Rosewood State Training School, OWINGS MILLS, MD. State, Dpt. P. Improv't., 506 Park Ave., Baltimore 1, Md. Eiser & Akers, 916 N. Charles St., Baltimore 1, Md., engrs.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ George F. Driscoll & Moccia Constr. Corp., 41 E. 42 St., New York 17, N. Y., LB $3,743,743, general constr.;

RAO Electric Equipment Co., 150 E. 41 St., New York 17, N. Y., LB $341,276, electrical work;

Lipsky & Rosenthal, Inc., Lexington Ave. and 11 St., New York 29, N. Y., LB $486,248, plumbing for Cooper Park HOUSES (Proj. No. NY-5-23) in area bounded by Kingland Ave., Frost St., Morgan Ave., Jackson St., Debevoise and Maspeth Aves., Brooklyn Boro, BROOKLYN, N. Y. Bids Dec. 18. CD 11/28.

Pine Estates Homes, c/o D. J. Levinson, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. Approx. $975,000. 75 one family HOUSES, Oakfield Rd. and Southern State Parkway, WANTAGH, N. Y.

▲ Concord Village Homes, c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y. Owner Builds. Approx. $6,000,000. 520 one-family HOUSES, Merrick Rd. and Keigh's Lane, WEST ISLIP, N. Y.

Yonkers Bd. Educ., 138 S. Broadway, Yonkers, N. Y. rejected bids Jan. 3, SCHOOL addn., Kneeland and Midland Aves., YONKERS, N. Y. CD 12/12.

▲ Forti Builders, Inc., c/o Lester Cohen, archt., 41 Main St., Hackensack, N. J. Owner Builds, $1,000,000, 62 one family HOUSES, NEW MILFORD, N. J.

▲ A. Kaplan & Son, Ltd., 80 Huegenot Ave., Englewood, N. J., CA, $2,714,000, general contract. Aspen Place low rent HOUSING, 384 families on 8-acre tract, PASSAIC, N. J. Housing Auth. of City of Passaic, City Hall, Passaic, N. J. Bids Dec. 19. CD 11/19.

▲ John A. Johnson Constr. Co., 268 41 St., Brooklyn 32, N. Y. CA general contract, $3,670,000;

L. Michael Plumbing & Heating Corp., 2243 Washington Ave., New York 57, N. Y., CA, $384,900, plumbing, etc.;

Frank A. McBride, 75 Spring St., Paterson, N. J., CA, $365,432, heating;

Watson-Flagg Elec. Co., 235 McLean Blvd., Paterson, N. J., CA, $319,943, electrical work, for 502 HOUSING units, 22 and 23 Aves., 35 to 31 Sts., PATERSON, N. J. Paterson Housing Auth. City Hall, Paterson, N. J. Grand Total $4,740,275. Bids Dec. 12. CD 12/6.

Conrad Gettler, 2826 Mt. Carmel Ave., North Hills, Pa. Separate Contracts. Approx. $300,000. RESIDENTIAL DEVELOPMENT, Surry Filbert and Burton Rds., ORELAND, PA.

G. J. Supplee, Mayfair House, Lincoln Dr. and Jackson Ave., Phila. Pa., CA. $82,000. 1 story, 70x170 ft. structural steel frame SHOP, 2 story, 30x70 ft. brick, block office, PHILA., PA. A. R. Jay Machine Co., 2554 Sepviva St., Phila., Pa. Daniel Tabas, Mulberry Lane, Haverford, Pa., archt.

Wark & Co., 1920 Sansom St., Phila., Pa., CA. $250,000. 2 story, 62x65 ft. brick POWER HOUSE, CA. $100,000, crane runway, PHILA., PA. The Budd Co., 3450 Hunting Park Ave., Phila., Pa. Garfield, Harris, Robinson & Schafer, 1720 E. 12 St., N. E., Cleveland, O., archts. CD 10/4.

George K. Keebner, Inc., 1231 Vine St., Phila., Pa., CA. $250,000. 2 story, brick printing and lithograph PLANT, PRIMOS, PA. Ketterlinus Lithographic Mfg. Co., 401 Arch St., Phila., Pa.

Hawthorne Builders, Inc., Eastern Ave. and Hawthorne Rd., Essex, Md. CA $594,000. sixty-six 2 story, bsmnt., 18x32 ft., brick group HOUSES, BALTIMORE, MD. Coralthorn Homes, Inc., Eastern Ave. and Hawthorne Rd., Essex, Md.

▲ Redding & Co., Inc., 26 E. 25 St., Baltimore, Md. and **James Stewart Co., Inc.,** 230 Park Ave., New York, N. Y. CA $2,879,796, superstructure AA BUILDING extension, grading, track work and utilities;

Geo. A. Fuller Co., Munsey Bldg., Wash., D. C. CA $669,000. foundation for extension of PLANT, MIDDLE RIVER, MD. Glenn L. Martin Co., Middle River, Md. CD 12/12 and 1/9, under LB.

Rupert Constr. Co., 3400 Lancaster Ave., Wilmington, Del., CA, $533,000, Collins Park Elementary SCHOOL, NEW CASTLE, DEL. Rose Hill Minquadale School Dist., 109 Stanley Lane, Collins Park, New Castle, Del. CD 1/9, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
January 29 North Carolina, Virginia
January 30 Louisiana
STREETS AND ROADS
January 29 North Carolina, Virginia
February 6, 13 Louisiana

Virginia—TRAFFIC SIGNAL LIGHTS—B.A. 1/29—State Hy. Dpt., Central Highway Office Bldg., Richmond, 12 traffic signal lights Rte. 244 on Columbia Pike between South Quinn St. and the W. & O. D. R.R. crossing, Arlington Co.; traffic signal installation U. S. 60 at the intersection of Beit Blvd. and Midlothian Turnpike, Chesterfield Co.

† Fla., Cocoa—LAUNCHING AREA—B.A. 1/30—U. S. Eng., P. O. Box 4970, Jacksonville, launching area drainage, Air Force Missile Test Center, Eng 08-123-52-83. Extended date. CD 1/9.

La., Choudrant—B.A. 1/30—Village, water storage tank.

† S. C., Parris Island—CLOTHING STORAGE, etc.—B.A. 1/31—Sixth Naval Dist., P. O. Box 365, Naval Base, Charleston, clothing issue storage and office bldg. at Marine Corps Depot, NOY 29458, Spec. 31131. Plans deposit $15. CD 9/17.

† La., Alexandria—SQUADRON HEADQUARTERS, etc.—B. A. 2/1—U. S. Eng., 300 Broadway, Little Rock, Ark., Job. No. Alexandria AFB A52-1A (Item 9 and Item 18), Lot 1, 3 squadron headquarters and operations bldgs., and Lot II, QM gas station, Alexandria Municipal Airport, Eng. 03-050-52-22. CD 12/31.

La., Plaquemine—GENERATING UNIT—B.A. 2/4—Town, concrete work, mechanical work and piping for electric generating unit. Plans deposit $15, Bernard & Burke, 1023 Nicholson Dr., Baton Rouge, engrs.

† S. C., Fort Jackson—BLEACHERS—B.A. 2/4—Purchasing & Contg. Officer, Fort Jackson, bleachers at various ranges and training sites, FJGDD-P-C-38-042-52-17.

† Fla., Green Cove Springs—SAFETY GUARDS, PIER AREA—B.A. 2/5—Sixth Naval Dist., Charleston, S. C., safety guards pier area, U. S. Naval Base, NOY 70708, Spec. 32241. Plans deposit $10.

La., Donaldsville—B.A. 2/5—West Ascension Parish Police Jury, 360,000 cu. yd channel excav. $40,000. CD 4/5/49.

Miss., Natchez—B.A. 2/5—Supervs. Adams Co. Court House, bridge over Mill Creek between Cannonsburg and Tate. Plans deposit $5.

Ga., Atlanta—HANGAR—B.A. 2/6—Fulton Co., Court House, addnl. hangar at Fulton County Airport. Extended date. Wilhoit & Smith, Mortgage Guarantee Bldg., archts. CD 12/13.

† Fla., Orlando—QUARTERS—B.A. 2/8—U. S. Eng., P. O. Box 4970, Jacksonville, bachelor officers quarters Pinecastle Air Force Base, Eng 08-123-52-102. Plans deposit $5. Extended date. CD 1/14.

† Ga., Fort Benning—B.A. 2/15—U. S. Eng., Post Office Bldg., Savannah, constr. Upatoi Creek Bridge and approaches, ENG 09-133-52-60. Plans deposit $10.

Va., Chatham—B.A. in Spring—Town, H. V. Fitzgerald, mayor, 2/3 m.g.d. water filtration plant. Plans deposit $20. William B. Sours & Assoc., Court House Bldg., Hampton, engrs. CD 11/28.

† Ga., Savannah—SECURITY STORAGE BLDG.—Bids Asked—U. S. Eng., Post Office Bldg., security storage bldg., Hunter Air Force Base, Inv. ENG 61. Plans deposit $10.

BIDS ASKED—BUILDINGS

Fla., Gainesville—APARTMENT, etc.—B.A. 1/29—Bd. Comrs. for State Institutions, Gainesville, apartment bldg. and addns. to infirmary addns. and extension to steam and hot water system and sanitary sewerage system both at Florida Farm Colony. Plans deposit $15 each. Reynolds, Smith & Hills, 227 Park St., Ga., Valdosta—PLANT—B.A. 1/29—Valdosta Coca-Cola Bottling Works, c/o Lloyd Greer & W. Conner Thompson, archts., 105 E. Ann St., plant addn.

N. C., Newton—HIGH SCHOOL—B.A. 1/29—Catawba Co. Bd. Educ., Newton, St. Stephens High School. Clemmer & Horton, Grant Bldg., Hickory, archts. CD 10/4/49.

S. C., Wagener—SCHOOL—B.A. 1/30—Aiken County School Dist. 60, Aiken, school. Extended date. Thomas G. Harmon, 3350 Millwood St., Columbia, archt. CD 1/10.

Miss., Jackson—SCHOOL—B.A. 1/31—Jackson Municipal Separate School Dist., 256 E. Griffith St. Jim Hill Junior-Senior High School. Powell Hall, 958 Alta Vista Blvd., Jackson, archt. Bids 11/1 rejected. CD 11/7, under LB.

Ala., Hartselle—HOUSING—B.A. After 2/1—Hartselle Housing Auth. Hartselle housing, Projects Ala. 87-1 and Ala. 87-2, $550,000.

▲ Ala., Mobile—HOUSING—B.A. After 2/1—Mobile Housing Auth., 1555 Eagle Dr., housing, Project Ala. Z-3, $4,000,000. CD 4/24/50.

Ala., Montevallo—HOUSING—B.A. After 2/1—Montevallo Housing Auth., Montevallo, housing, Projects Ala. 79-1 and Ala. 79-2, $450,000.

Ala., Roanoke—HOUSING—B.A. After 2/1—Roanoke Housing Auth., Roanoke, Ala., housing Projects Ala. 65-1 and Ala. 65-2, $400,000. CD 12/4.

Miss., Biloxi—HOUSING—B.A. After 2-1—Biloxi Housing Auth., Biloxi, housing, Proj. Miss. 5-6, $400,000.

Miss., Bonneville—HOUSING—B.A. After 2/1—Bonneville Housing Auth., Bonneville, housing Projects. Miss. 65-1 and Miss. 65-2.

Miss., Holly Springs—HOUSING—B.A. After 2/1—Holly Springs Housing Auth., housing, Projects Miss. 62-1 and 62-2, $500,000.

▲ Miss., Laurel—HOUSING—B.A. After 2/1—Laurel Housing Auth., Laurel, housing, Proj. Miss. 2-3, $1,500,000.

Miss., Yazoo City—HOUSING—B.A. After 2/1—Yazoo City Housing Auth., Yazoo City, 72 housing units, Proj. Miss. 63-2. CD 11/23.

Tenn., Brownsville—HOUSING—B.A. After 2/1—Brownsville Housing Auth., Brownsville, 60 unit housing, Projects Tenn 13-1 and Tenn 13-2. $550,000. CD 7/27/50.

Tenn., Union City—HOUSING—B.A. After 2/1—Union City Housing Auth., Union City, 75 units housing, Tenn 9-3. $650,000. CD 12/29/49.

N. C., Durham—HOUSING—B.A. 2/2—Durham Housing Auth., 20614 Corcoran St., 240 housing units, Proj. NC 13-1. H. Raymond Weeks, Inc., Snow Bldg., archt. CD 1/9/50.

N. C., Concord—SCHOOL—B.A. 2/5—Cabarrus Co. Bd. Educ., Concord, Harrisburg School addns. Plans deposit $25. A. G. Odell & Assoc., 109 W. 3 St., Charlotte, archts.

Tenn., Nashville—HOUSING—B.A. 2/7—Nashville Housing Auth., 701 S. 6 St., 550 housing units. Extended date. CD 1/10.

† Ga., Augusta — LAUNDRY — B.A. 2/12 — Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash., D. C., constr 288,000 sq. ft. Laundry Bldg. 95, at hospital, incl. road, walks, grading, plumbing, heating, ventilating, electrical work, outside services and other items.

N. C., Raleigh—SCHOOL—B.A. About 2/15—City, Raleigh, 36,000 sq. ft. Ridge Road School. Approx. $300,000. Plans deposit $35. Lowenstein & Waugh Assoc., 2426 Hillsboro St., archts. CD 4/26/50.

Miss., Picayune—CHURCH—B.A. 2/18—First Methodist Church, c/o James D. Carter & Edward Tsoi, archts., 365 Humble Bldg., New Orleans, La., church. CD 9/27.

▲ Ky., Newport—HOUSING—B.A. About 3/1—Newport Housing Comm., 325 housing units. CD 1/16. CD 1/16.

Tenn., Rockwood—HOUSING—B.A. 3/1—Rockwood Housing Auth., Rockwood, 50 housing units. CD 4/20/51.

S. C., Bennettsville—HOUSING—B.A. 4/1—Bennettsville Housing Auth., Bennettsville, 65 housing units. $600,000. CD 12/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† VIRGINIA and NORTH CAROLINA—U. S. Eng., foot of Front St., Norfolk, Va.,

Wright Contg. Co., 504 25 Ave., Columbus, Ga., CA. $333,184, relocation Virginia Secondary Road 712 in John H. Kerr Dam and Reservoir area, CIVENG 44-110-52-16B, Bids Jan. 8. CD 12/13.

▲ Stone & Webster Eng. Corp., 40 Federal St., Boston, Mass., CA. Approx. $27,000,000. hydro-electric power plant and dam in Roanoke River, ROANOKE RAPIDS, N. C. Virginia Electric & Power Co., 7 and Franklin Sts., Richmond, Va. Charles T. Main, Inc., 80 Federal Sts., Boston, Mass., engr. CD 9/14/48, under Unclassified.

Fiske-Carter Constr. Co., Spartanburg, S. C., CA. $75,-615, filtration plant addns., SPARTANBURG, S. C. City, Spartanburg, S. C. Bids Jan. 12. CD 12/17.

† Sixth Naval Dist., Charleston, S. C., received no bids Dec. 18, radar reflector target Lake George Bomb Target, Lake George, NOY 29339, Spec. 31049, JACKSONVILLE, FLA. Will readvertise. CD 12/12.

City, Miami Beach, Fla., rejected bids Dec. 21, superstructure bascule span of 63d St. Bridge, MIAMI BEACH, FLA. LB $388,635. CD 1/4, under LB.

† W. H. Herrin, P. O. Box 1252, Lakeland, Fla., CA, $464,228 armament-electronics repair shop, warehouse, etc. at MacDill Air Force Base, Inv. 52-80, TAMPA, FLA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Jan. 9. CD 12/7.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

Barber Brothers Co., 2636 Dougherty Dr., Baton Rouge, a. LB $262,190. grading, rein.-con. slab span bridge, bit. surf. tr. 4.838 mi. Indian Bayou-Rayne Hy., State Rte. 367, S.P. 207-06-01, F. A. Secondary Proj. S 194 (1), Lafayette and Acadia Parishes;

W. R. Core, Clenmora, La. LB $173,089. grav. bit. surf. tr. three 19 ft. span creosoted timber trestle bridge, 9.948 mi. Pineville-Moncia Hy., State Rtes. 47 and 57-D, S.P. 142-01-08, 142-02-04 and 33-03-14, Rapides and Avoyelles Parishes;

L. M. Winford, Baton Rouge, La. LB $170,959. bit. surf. tr. 6.501 mi. Long Cabin Twin Oaks and Jones-Laark Hys., State Rte. 1484, 1561 and 1412, S.P. 172-01-08 and 834-07-05, Morehouse Parish;

T. W. Kleinpeter, 146 S. Leo St., Baton Rouge, La., LB $73,761. bit. surf. tr. 3.891 mi. roads in Harve and Gretna, S.P. 703-09-53, 714-01-59, Jefferson Parish. Bids Jan. 9. CD 12/31.

† W. A. Gray Constr. Co., 861 Grimmet Dr., Shreveport, La. LB $190,000. A.I.O. warehouse, Alexandria Air Force Base, Inv. 52-21, ALEXANDRIA, LA. U. S. Eng., 300 Broadway, Little Rock, Ark. Bids 1/4 rejected. CD 1/10, under LB.

H. B. Hornsby, Bossier City, La. CA $120,909. 983,-000 cu. yd. channel excav., COVINGTON, LA. St. Tammany Parish Police Jury, Covington, La. Bids Jan. 10. CD 12/31.

Earl L. Millen, 2615 Old Minden Rd., Bossier City, La. CA $56,847. 382,000 cu. yd. channel excav., NATCHITOCHES, LA. First Gravity Drainage Dist., 112 St. Denis St., Natchitoches, La. Bids Jan. 11. CD 12/27.

City, Sewerage & Water Bd., 526 Carondelet St., New Orleans, La. rejected bids Jan. 4, Contr. 321-S sanitary sewers, LB $99,286; Contr. 327-W, water mains, LB $64,412, NEW ORLEANS, LA. CD 1/10, under LB.

Armco Drainage & Metal Products, Inc., Maritime Bldg., New Orleans, La. LB $216,376, steel pile shells, tips, connectors and attachments for Palmetto Street Overpass, NEW ORLEANS, LA. City Hall, New Orleans, La. Bids Jan. 11. CD 5/3/51.

† McDowell & McDowell, 699 Murfreesboro Rd., Nashville, Tenn., CA. $258,927, extend concrete runway at Berry Field, NASHVILLE, TENN. Tennessee Air National Guard, Berry Field, Nashville, Tenn. Bids Jan. 3. CD 12/17.

BUILDINGS

LOW BIDS AND CONTRACTS

F. H. Martel Co., Inc., 1023 20 St., N. W., Wash., D. C., CA. $862,500, SCHOOL, Jefferson and Fayette Sts., ALEXANDRIA, VA. City, Alexandria, Va. Awarded Jan. 14. CD 1/4, under La., Alexandria, LB.

▲† J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, N. C. CA. $4,532,800, sixteen 225-man BARRACKS and CENTRAL HEATING PLANT, Inv. 52-3, FORT EUSTIS, VA. U. S. Eng., foot of Front St., Norfolk, Va. CD 1/15, under LB.

Russell T. Swain, Virginia Beach Blvd., Norfolk, Va., Owner Builds. Approx. $300,000. RESIDENTIAL DEVELOPMENTS, NORFOLK, VA.

▲ Gross-Morton Corp., 733 Chesterfield St., Aiken, S. C. Owner Builds. $50,000,000. HOUSING, 5,000 rental houses known as Crosland Park on U. S. Hy. 1, AIKEN, S. C. William G. Lyles, Bisset, Carlisle & Wolff, Emory Holroyd Assoc., 1321 Bull St., Columbia, S. C., archts.

▲ M. Lowenstein & Son, Inc., 43 Lenard St., New York, N. Y., Owner Builds. Approx. $2,500,000. Spinning and Weaving PLANT, ANDERSON, S. C.

Spong Constr. Co., 6084½ Harden St., Columbia, S. C., LB $572,650. HIGH SCHOOL, BATH, S. C. Aiken Co. School Dist. 4, Aiken, S. C. Bids Jan. 10. CD 12/31.

J. Kennon Perrin Co., 5 and Cary Sts., Richmond, Va., LB $350,000. CLASSROOM-DORMITORY, CHARLESTON, S. C. St. Catherines School, c/o J. Binford Walford & O. Pendleton Wright, archts., 103 E. Cary St., Richmond, Va. Bids Dec. 27. CD 12/26.

Barger Constr. Co., Mooresville, N. C., CA. $305,000. York Rd., Elementary SCHOOL, CHARLOTTE, N. C. Bd. School Comrs., 600 E. Trade St., Charlotte, N. C. Bids Jan. 4. CD 12/21.

B. M. Smith, Sr., 1974 De Kalb Ave. N. E., Atlanta, Ga., Owner Builds, $350,000, 30 RESIDENCES, one apartment, ATLANTA, GA.

W. M. Crawford, Flowers Bldg., Columbus, Ga., CA $349,900 50 HOUSING UNITS, FITZGERALD, GA. Fitzgerald Housing Auth., Fitzgerald, Ga. Bids Jan. 10. CD 12/19.

A. K. Abel, Macon, Ga., CA, $300,000, CHURCH, MACON, GA. Vineville Baptist Church, c/o MacEwen, Hall & Ferguson, archts. Bankers Insurance Bldg., Macon, Ga. Bids Dec. 31. CD 12/28.

Cecil H. Mason, 6 W. Bryan St., Savannah, Ga., Owner Builds, several RESIDENTIAL DEVELOPMENTS, SAVANNAH, GA.

Lockheed Heights Subdivision, c/o Stuart P. Murray, 970 Jefferson St. N. W., Atlanta, Ga. Owner Builds, $800,000, 104 RESIDENCES, SMYRNA, GA.

C. A. Fielland, Inc., 107 N. Rome Ave., Tampa, Fla., CA. $300,000, RESIDENCES, LAKELAND, FLA. Camphor Heights, c/o contractor.

Vulcan Housing Corp., Birmingham, Ala. Owner Builds. $300,000. HOUSING Units, ANNISTON, ALA.

Ralph H. Ford, Huntsville, Ala., Owner Builds. 50 HOUSING units, HUNTSVILLE, ALA.

Harry G. Webb, Huntsville, Ala., Owner Builds. $450,-000. 50 HOUSING UNITS, HUNTSVILLE, ALA.

Howard Lamb, Huntsville, Ala., Owner Builds, $405,000. 45 HOUSING units, HUNTSVILLE, ALA.

F. K. Noojin, Huntsville, Ala., Owner Builds, $450,000. 50 HOUSING units, HUNTSVILLE, ALA.

James K. Taylor, Huntsville, Ala. Owner Builds. $330,-000, 36 HOUSING units, HUNTSVILLE, ALA.

Wainwright & Thompson, Huntsville, Ala. Owner Builds. $300,000. HOUSING units, HUNTSVILLE, ALA.

James L. Caldwell, Huntsville, Ala., Owner Builds, $450,-000. 50 HOUSING units, HUNTSVILLE, ALA.

Abe Goldstein & George Gesman, Huntsville, Ala., Owner Builds. $450,000. 50 HOUSING units, HUNTSVILLE, ALA.

James A. Lane, Huntsville, Ala., Owner Builds, $450,-000. 50 HOUSING UNITS, HUNTSVILLE, ALA.

Douglas Brown, Ozark, Ala., Owner Builds, $350,000, HOUSING units, OZARK, ALA.

Ready-Mix Concrete Co., 16 26 Ave. S., Meridian, Miss. Owner Builds. $100,000. PLANT, MERIDIAN, MISS.

State Purchasing Dpt., State Capitol, Nashville, Tenn., rejected bids Dec. 13, two 1 story 100-bed DORMITORIES at the State Home for the Feeble Minded, DONELSON, TENN. LB $666,715. CD 12/18, under LB.

Barge-Thompson Co., 136 Ellis St., Atlanta, Ga., CA. $300,000. Dial and Toll OFFICE addns., 312 Broadway, KNOXVILLE, TENN. Southern Bell Telephone Co., 500 Union St., Knoxville, Tenn. CD 1/18/51.

George R. Clawson-Max Harding Dartmoor Development Co., Charleswood Rd., Memphis, Tenn. Owner Builds. Approx. $600,000. 42 RESIDENCES, MEMPHIS, TENN.

H. F. Vann Constr. Co., 1089 Galloway St., Memphis, Tenn., CA. $310,000. SCHOOL, Hernando and Norris Sts., MEMPHIS, TENN. City Bd. Educ., 317 Poplar St., Memphis, Tenn. Bids Dec. 14. CD 11/29.

▲ James F. O'Neil, 1501 S. Rendon St., New Orleans, La. CA $1,221,500. mechanical system for Greenville Mills PLANT, GREENVILLE, MISS. City, Greenville, Miss. CD 1/10, under LB.

M. T. Reed Constr. Co., P. O. Box 1066, Jackson, Miss. CA $533,233. HOUSING, Projs. LA 24-3 and LA 24-4, BOGALUSA, LA. Bogalusa Housing Auth., Bogalusa, La. Bids Jan. 10. CD 12/18.

† John Wile Constr. Co., 326 Humer Ave., Louisville, Ky. CA $605,550. ACADEMIC BUILDING, paving, necessary utilities, Armored Center, Eng. 15-029-52-35, FORT KNOX, KY. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Awarded Jan. 10. CD 1/11 under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

January 30 Michigan

STREETS AND ROADS

January 30 Michigan

† Ind., New Albany—B.A. 2/1—U. S. Eng., 830 W. Broadway, Louisville, 1, Ky., mechanical and electrical equipment East Section Pumping Plants, Serial No. 15-029-52-52. Extended date. CD 1/10.

BIDS ASKED—BUILDINGS

† Mich., Battle Creek—GENERATOR—B.A. 1/28—Dpt. Army, Post Engineer, Bldg. 1770, Fort Custer. Emergency Generator Bldg. 1770, incl. necessary overhead aerial work, Fort Custer, Eng. 20-006-52-10. CD 6/28, under Mich., Fort Custer.

▲† O., Toledo—WAREHOUSE—B.A. On or About 3/5—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., 200x1,000 ft. steel frame, concrete masonry general purpose warehouse for dehumidified storage, incl. sprinkler sys. for bldg., utilities, drains, paving hardstands land construct approx. 1,000 ft. railroad track, at Rossford Ordnance Depot, Serial No. ENG 46-022-52-103. Plans deposit $15. CD 1/11.

SOON LETS CONTRACT—BUILDINGS

▲ Wis., Fond du Lac—FACTORY—Giddings & Lewis Machine Tool Co., 142 Doty St., soon lets contract 1 story, 122x160 ft., steel, brick, concrete factory addn. F. J. Stepnoski & Son, 25 E. Merrill Ave., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **George W. Timmons Constr. Co.,** 1277 E. Broad St., Columbus, O., LB $365,452, aircraft nose dock for servicing planes and two 143x210 ft. masonry shops at Lockbourne Air Force Base, Serial No. ENG 46-022-52-84, near COLUMBUS, O. U. S. Eng., 237 Fourth Ave., Huntington 14, W. Va. Bids Jan. 8. CD 11/16.

ILLINOIS—State Div. Hys., Springfield,

Wendnagel & Co., 600 W. Cermak Rd., Chicago 16, Ill., LB, $71,645, furnishing structural steel for railroad viaduct on Ill. 31, Kane Co.;

H. H. Mass Constr. Co., Algonquin, Ill., LB, $423,401 substructure and erecting structural steel for 3 bridges on US 50, Clay and Richland Counties;

Standard Paving Co., 30 N. LaSalle St., Chicago 2, Ill., LB, $280,140, constr. 1 culvert and 2 bridges on US 40 Clark Co.;

Allied Structural Steel Co., 20 N. Wacker Dr., Chicago 6, Ill., LB, $186,275, furnishing structural steel for 3 bridges US 50, Clay and Richland Counties. Bids Jan. 11. CD 12/28.

Collins & Wilson, 709 W. Hillgrove St., Lagrange, Ill., LB $152,885, sewage treatment works, LAKE ZURICH, ILL. Village, Village Hall, Lake Zurich, Ill. CD 12/6, under LB.

John Kozicki, 716 Roy Ave., Green Bay, Wis., LB, $209,932, sewage treatment plant, OCONTO, WIS. City, Oconto, Wis. Bids Jan. 3. CD 12/12.

MICHIGAN—State Hy. Dpt., 222 Townsend St., Lansing, Zone 13.

Brown Brothers, 426 W. Barnes St., Lansing, Mich. LB $104,438, est. $110,000, rein.-con., steel bridge treated timber piles, reinforcement on relocation US-16 over Cockery Creek. F1 B1 of 78-4-2 C2 (F1-176 13), Ottawa Co. Bids Jan. 9.

MICHIGAN—State Hy. Dpt., 222 Townsend St., Lansing, Zone 13.

P. Vander Veen & Sons, 2020 Newark St. S.E., Grand Rapids, Mich. LB $249,618, est. $255,000. b. conc. wid'n. 1,308 mi. US-16, F1 33-9 C1B (F1-88 51, M 33-24 C15, M 33-24 C16, F 33-68 C1 (F 45 51), Ingham Co. Bids Jan. 9. CD 12/28.

MICHIGAN—State Hy. Dpt., 222 Townsend St., Lansing, Zone 13.

L. W. Edison Constr. Co., Lansing, Mich. CA $259,188, est. $200,000. b. conc. 1.907 mi. on M-43, M 33-15 C5, Ingham Co. Bids Jan. 9. CD 12/28.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Sam W. Emerson Co.,** 1836 Euclid Ave., Cleveland, O., CA. Approx. $1,500,000. MACHINE TOOL PARTS PLANT, NEW PHILADELPHIA, O. Warner & Swasey Co., 5701 Carnegie Ave., Cleveland 3, O. CD 12/27.

▲ **Fitzsimmons & Connell Dredge & Dock Co.,** 10 S. La Salle St., Chicago, 3, Ill., CA, $5,000,000 3, 2 and 1 story, steel brick, chemical PLANT, CHICAGO, ILL. Allied Chemical & Dye Corp., Barrett Div., 40 Rector St., New York, N. Y. Awarded Jan. 7. CD 9/10.

Local Constr. Co., 4337 W. Melrose Ave., Chicago, Ill., CA, $300,000, SCHOOL, CHICAGO, ILL. St. John of God Church, Throop and 52 Sts., Chicago, Ill. Awarded Jan. 7. CD 11/29.

▲ **United Engineering & Foundry Co.,** 948 Duquesne Way Pittsburgh, Pa., CA, $3,500,000. 56-inch tandem COLD ROLLING MILL and 2 Skin-Pass MILLS at Indiana Harbor Works, EAST CHICAGO, IND. Youngstown Sheet & Tube Co., Stambaugh Bldg., Youngstown, O. CD 11/1.

Ray J. Benoit, Kankakee, Ill., LB, $386,872, general contract, 1 story, part bsmnt, HIGH SCHOOL CLIFTON, ILL. Central Community Unit Schools Dist. 4, Clifton, Ill. Bids Jan. 4. CD 12/20.

Peter W. Zecker c/o 12545 Linwood St., Detroit, Mich. CA $400,000, forty or more 1½ story, brick, frame HOUSES, Ryand St. and Outer Dr., DETROIT, MICH. Benjamin J. Rich, 12545 Linwood St., Detroit, Mich.

▲ **Edward Rose,** 14900 Linwood St., Detroit, Mich. Owner Builds. $2,000,000. 230 brick HOMES, Edmunds Blvd. and Dix Ave., LINCOLN PARK, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

January 29 Iowa, January 31 Kansas
February 1 Missouri

STREETS AND ROADS

January 29 Iowa, January 31 Kansas
February 1 Missouri

Mo., St. Louis—B.A. 2/1—State Hy. Comn., Jefferson City, repairs McArthur Municipal Bridge, over Mississippi River. Over $65,000. Rex. Whitton, ch. engr. CD 3/7/46.

† **Tex., Laredo**—RUNWAY, etc.—B.A. 2/6—U. S. Eng., 606 Santa Fe Bldg., Galveston, runway, taxiway and airfield lighting, Laredo Air Force Base, Inv. No. 41-243-52-45. Bids date changed. CD 1/14.

† **Tex., Randolph Field**—MOTOR POOL—B.A. 2/6—U. S. Eng., 606 Santa Fe Bldg., Galveston, motor pool area, 33,000 sq. yd. concrete paving, drainage, etc., Inv. No. Eng 41-243-52-43. Est. $245,000. Extended date. CD 12/28.

† **Tex., Mineral Wells**—BARRACKS—B.A. 2/7—U. S. Eng., 1127 Texas & Pacific Bldg., Fort Worth, ten 32x220 ft. permanent type airmen's barracks, for Camp Wolters Air Force Base. Approx. $500,000. Extended date. CD 1/3.

BIDS ASKED—BUILDINGS

▲ **Kan., Lawrence**—SCHOOL—B.A. 2/1—Bd. Educ., Lawrence, Senior High School. $1,600,000. Griest & Ekdahl, New England Bldg., Topeka, archts. CD 1/9.

Tex., El Paso—HOUSING—B.A. 2/6—El Paso Housing Auth., El Paso, 24 dwelling bldgs., site imprvs., utilities, all mechanical. $300,000. Plans deposit $50. Louis L. McIlliinary, 701 Caples Bldg., archt. CD 10/5.

Mo., Rolla—SCHOOL—B.A. 2/7—School Dist., Bd. Educ., brick, concrete, high school. $300,000. Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, engr. and archt. CD 2/7/51.

▲ **Mo., Clayton (St. Louis 5, P.O.)**—SCHOOL—B.A. 2/29—School Dist of Clayton, Bd. Educ., John L. Bracken, supt. Schools, 7500 Maryland Ave., Zone 5, brick, concrete, steel high school, $1,400,000. Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, engr. and archt. Bids 9/1 rejected. CD 9/11, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Ernst J. Ward, Benton, Ark., LB, $155,033, water supply line, BENTON, ARK. City, Benton, Ark. Bids Jan. 3. CD 12/28.

KANSAS—State Hy. Comn., Smith Center,

E. W. Geiger, Inc., First and Topeka Sts., Topeka, Kan. CA $113,365. Bridge 36-92-10.9-40 ft., 54 ft., 54 ft., 40 ft., continuous rein.-con. girder, Sta. 440 plus 31; Bridge 36-92-12-p., Sta. 527 plus 60.5 rev. to Sta. 527 plus 82.5, 36 ft., three 45 ft., 36 ft. continuous rein.-con. slab spans; and Bridge 36-92-13.5, 40 ft., 54 ft., 40 ft. continuous rein.-con. girder, Sta. 576 plus 71, Proj. 36-92 F 092-2 (1), Smith Co. Bids Dec. 28. CD 12/14.

KANSAS—State Hy. Comn., Topeka,

E. W. Geiger, Inc., First and Topeka Sts., Topeka, Kan. CA $108,507. Bridge 75-43-26.8. 50 ft., 70 ft., 50 ft. rein.-con. deck girder spans, Sta. 57 plus 26; and Bridge 75-43-30.5 60 ft., 84 ft., 84 ft., 60 ft. rein.-con. deck girder spans, Sta. 621 plus 00, 75-43 F 584 (2), Jackson Co. Bids Dec. 20. CD 12/4.

KANSAS—State Hy. Comn., Smith Center,

M. W. Watson, National Bank of Topeka, Topeka, Kan. CA $172,497. grading 0.442 mi., Proj. 25-55 S 151 (1), Logan Co. and grading, detour 8.246 mi. Proj. 36-92 F 092-2 (1), Smith Co. Bids Dec. 28. CD 12/14.

KANSAS—State Hy. Comn., Topeka,

E. W. Geiger, Inc., First and Topeka Sts., Topeka, Kan. CA $185,250. grading 1.001 mi. Proj. 75-7 F 584 (3), Brown Co. and grac.., 5.712 mi. Proj 75-43 F 584 (2), Jackson Co. Bids Dec. 20. CD 12/4.

Doerfler Constr. Co., 2514 S. Agnew St., Oklahoma City 8, Okla., CA, $423,563, est. $450,000 11 mi. 2- to 12-in. c.i. water main, OKLAHOMA CITY, OKLA., City, City Hall, Oklahoma City, Okla. C. E. Bretz, 1916 N. Broadway, Oklahoma City, Okla., engr. Awarded Dec. 26. CD 5/15/50.

▲ **TEXAS**—State Hy. Comn., Austin,

Harrison Eng. & Constr. Corp., 4638 J. C. Nichols Parkway, Kansas City, Mo., LB $967,600, c. conc. 6.107 mi. Hy. S. H. 73, Proj. RI 1052 (18), Harris Co.;

Worth Constr. Co., 312 E. Berry St., Fort Worth, Tex., LB $222,773, c. conc. 0.913 mi. Hy. U.S. 84, Proj. V 605 (14), McLennan Co.;

J. W. Perry, 501 Insurance Bldg., San Antonio, Tex., and **R. B. Butler, Inc.,** P.O. Box 471, Bryan, Tex., LB $186,464, grading, structures, flexible base, 2 course surf. tr. 3.219 mi. Hy. U.S. 79, Proj. F 10 (11), Williamson Co.;

South Texas Constr. Co., P.O. Box 3536, Corpus Christi, Tex., LB $94,360, grading, structures, base and surf. 5.579 mi. Hy. F.M. 1727, Proj. S 682 (2), Matagorda Co.;

Harry Campbell, 2854 Berry St., Fort Worth 4, Tex., LB $455,192, flexible base, 2 course surf. tr. Hy. U.S. 80, Proj. FI 444 (21), Nolan Co.; LB $62,700, grading, structures, base, surf. 6.698 mi. Hy. FM 604 and 880, Proj. S 1303 (1), Callahan Co.;

Public Constr. Co., P.O. Box 380, Denton, Tex., LB $79,159, hot mix b. conc. pavement 7.988 mi. Hy. U.S. 80, Proj. C 95-7-22, Van Zandt and Smith Counties; LB $114,047, hot mix b. conc. 8.237 mi. Hy. U.S. 80, Proj. F 21 (4) and FI 142 (14), Gregg and Harrison Counties;

Campbell & Kay, P.O. Box 836, Tyler, Tex., LB $57,988, est. $60,000. grading, structures, base and surf., Hy. FM 1253, Proj. S 508 (2), Smith Co.;

Cooper & Woodruff, 222 Mays Bldg., Amarillo, Tex., LB $180,584, flexible base, 2-course surf. tr. 17.273 mi. Hy. SH 51, Proj. S 1510 (4), Oldham Co.;

C. Hunter Strain, P.O. Box 1057, San Angelo, Tex., LB $69,812, seal coat 60.467 mi. U.S. Hy. 283, 183, SH 79 and 24, Proj. S 124-3-17, Wilbarger, Baylor and Throckmorton Counties;

J. R. Fanning, P.O. Box 1047, Lubbock, Tex., LB $75,836, grading, structures, base and surf. 10.096 mi. Hy. FM 1718, Proj. S 1579 (1), Martin Co.;

Ernest L. Mays, 710 14 St., Beaumont, Tex., LB $97,-319. grading, structures, base and surf. 4.89 mi. Hy. FM 1724, Proj. S 1748 (1), Chambers Co.;

John F. Buckner, P.O. Box 76, Cleburne, Tex., LB $78,-891. grading, structures, base and surf. 8.684 mi. Hy. FM 1229, Proj. S. 1607 (1), Mitchell Co.;

Kerr & Middleton, 2206 Colvis Rd., Lubbock, Tex., LB $118,399, grading, structures, base and surf. 12.125 mi. Hy FM 651, Crosby Co.;

Ernest Loyd, P.O. Box 1120, Fort Worth 1, Tex., LB $142,474, flexible base, 2-course surf. tr. 4.789 mi. Hy. SH 27, Proj. FI 243 (5), Kerr Co. Bids Jan. 15. CD 1/4.

Henderson Co., Court House, Athens, Tex., Force Account. $107,145, repairing, reconditioning, surf. 15 mi. roads, Malakoff area, ATHENS, TEX. CD 10/4.

Heldenfels Brothers, 521 McBride Lane, Corpus Christi, Tex., LB $234,869, installing piping and mechanical equip. for Broadway Sewage Treatment Plant, CORPUS CHRISTI, TEX. City, City Hall, Corpus Christi, Tex. Bids Jan. 8. CD 12/26.

Lone Star Gas Co., 1915 Wood St., Dallas, Tex., Force Account. $275,000. some gas distr. lines, DALLAS, TEX. CD 5/1/47.

◧ **Paso County Water Control & Imprvt. Dist. 3,** El Paso, Tex., Own Forces. $150,000. some sanitary sewers, EL PASO, TEX. L. E. Garrett, Court House, engr. CD 4/22/48.

Hoffman & Borders, 3904 Huaco Lane, Waco, Tex., LB $380,000, sewage treatment plant, GARLAND, TEX., City, Garland, Tex. Bids Jan. 8. (Correction-contractor). CD 1/16, under LB.

J. B. Mayfield, Box 720, Burleson, Tex., LB $398,057, est. $300,000. water storage reservoir, earthen type, incl. 600,000 cu. yd. earthwork, GREENVILLE, TEX. City, City Hall, Greenville, Tex. Bids Jan. 11. Freese & Nichols, 407 Danciger Bldg., Fort Worth, Tex., engrs.

John Heffernan, Jr., 3300 Old Spanish Trail, Houston, Tex., LB $177,220, laterals for storm sewerage sys. on Oxford St., HOUSTON, TEX. City, City Hall, 900 Brazos St., Houston, Tex., Bids Jan. 14. CD 1/9.

Gulf Bitulithic Co., 2820 Polk St., Houston, Tex., LB $227,751, est. $229,774, 7 in. rein.-con. paving, 49,680 sq. yd. Jensen Dr., HOUSTON, TEX. City, City Hall 900 Brazos St., Houston, Tex. Bids Jan. 11. L. Fuagte, city engr.

E. L. Dalton & Co., P. O. Box 7125, Dallas, Tex., CA. $263,898, est. $300,000. water supply and distr. sys., LAKE WORTH, TEX. Village, A. W. Mills, mayor, Lake Worth, Tex. Bids Jan. 9, awarded Jan. 10. CD 12/28.

† **W. L. Rea Constr. Co.,** Box 1192, Corpus Christi, Tex., LB $139,933, refueling sys. for Laredo Air Force Base, Inv. No. Eng 41-243-52-37, LAREDO, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Jan. 10. CD 12/4.

Wiley Bros. Contg. Co., 6511 Domingo Rd., Albuquerque, N. M., CA. $540,954, est. $678,662, paving streets and alleys, curb and gutter and other related imprvs. and appurtenances, CARLSBAD, N. M. Mayor and City Council of Carlsbad, N. M. Ashley G. Classen & Assoc., 504 N. Kansas St., El Paso, Tex., engrs. Awarded Jan. 8. CD 1/16/46.

† **Lembke-Clough & King,** P.O. Box 245, Albuquerque, N. M., LB $539,950, Base Bid;

C. H. Leavell & Co., 1900 Wyoming St., El Paso, Tex., LB $483,043, Alt. Bid for two story, 36x219 ft. masonry panel bldgs., Walker Air Force Base, Inv. 29-005-52-25, ROSWELL, N. M. U. S. Eng., P.O. Box 1538, Albuquerque, N. M. Bids Jan. 9. CD 12/20.

BUILDINGS

LOW BIDS AND CONTRACTS

D'Arcy Leck Constr. Co., 2838 Stevens Ave., Minneapolis, Minn. LB $468,901. general contract, grade SCHOOL, EDINA (MINNEAPOLIS P. O.), MINN. Bd. Educ., Mrs. J. F. Richards, clk., Edina, Minn. Bids Jan. 9. CD 12/12.

Foley Bros., Inc., 900 New York Bldg., St. Paul, Minn. CA $500,000. remodel DRYER HOUSE, MINNEAPOLIS, MINN. Fleischmann Malting Co., 1717 Second St. N. E., Minneapolis, Minn. CD 1/9.

W. A. Kepp & Son, Remsen, La., CA, $320,152, general constr. 2 story, 84x123 ft. and 88x142 ft. L-shaped, brick, rein.-con., steel stone SCHOOL, REMSEN, IA. St. Mary's Catholic Parish, Remsen, Ia. Bids Jan. 8. CD 12/31.

C. T. Wilson Contg. Co., 99 E. Grand Ave., St. Louis 7, Mo., CA $450,000. sixty-five 1 story, 24x34 ft. frame DWELLINGS, Caithness, Galloway and Lanark Drvs., BADEN STATION (ST. LOUIS 15, P. O.), MO. M. H. Carpenter, Inc., 10401 Trongate Pl., Baden 15, Mo. Paul Klingersmith & Assoc., 4232 W. Pine Blvd., St. Louis 8, Mo., archts.

Peterson, Garbi & Joseph, Inc., 123 E. 9 St., North Little Rock, Ark., CA, $100,000, PLANT, NORTH LITTLE ROCK, ARK. Delta Insectide & Chemical Co., 12 and Cedars Sts., North Little Rock, Ark. Eichenbaum & Rauch, Wallace Bldg., Little Rock, Ark., archts.

▲ **Bralei Homes, Inc.,** 5 and Vine Sts., Little Rock, Ark., CA. Approx. $1,000,000, 150 HOUSING units, PINE BLUFF, ARK. Miramar Homes, c/o contractor.

▲ **Clyde Smithwick,** 1606 W. 24 St., Pine Bluff, Ark., CA. Approx $1,000,000, 150 HOUSING units, PINE BLUFF, ARK. Phillips Homes, Inc., c/o contractor.

S. R. Smith Co., 510 S. Denver St., Tulsa, Okla., LB $521,893, Eisenhower Elementary SCHOOL, 31st St. and New Haven Ave., TULSA, OKLA. Bd. Educ., 410 S. Cincinnati St., Tulsa, Okla. CD 10/9/50.

Home Builders, Inc., c/o Neal Giesecke, mayor, Angleton, Tex., Own Forces. Approx. $340,000. 20 DUPLEXES, ANGLETON, TEX. CD 11/14.

▲ **Robert E. McKee, General Contr., Inc.,** P.O. Drawer 2848, Dallas, Tex., LB $2,630,000, mechanical and electrical work combined for 12 story 650-bed HOSPITAL, DALLAS, TEX., City, City Hall, Main and Harwood Sts., and Dallas Co., Court House, Dallas, Tex. Bids Jan. 10. CD 11/7.

▲ **Robert E. McKee, General Contractor, Inc.,** P. O. Drawer 2848, Dallas, Tex., LB $7,749,000, est. $7,-500,000. 12 story, bsmnt., 650 bed masonry city-county HOSPITAL: NURSES HOME, and LAUNDRY

PLANT, DALLAS, TEX. City, City Hall, Main and Harwood Sts., and Dallas Co., Court House, Dallas, Tex. Bids Jan. 10. CD 11/7.

▲ **N. A. B. Corp.,** Milby Hotel, Houston, Tex., CA $4,989,913, construct, manage, finance 403 military HOUSING units, Inv. No. Eng 41-243-51-56, Job. No. 4192, FHA Proj. No. 112-80002-Army-2, FORT HOOD, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., Bids June 13. CD 6/19, under LB.

▲ **C. F. Braun & Co.,** 1000 S. Fremont Ave., Alhambra, Calif., CA. Approx. $42,000,000, design and construct ALUMINUM PLANT, GREGORY, TEX. Reynolds Metals Co., 3 and Grace Sts., Richmond, Va.

Dryden Corp., 5150 Griggs Rd., Houston, Tex. Owner Builds. Approx. $335,000. Unit 1, 40 DWELLINGS, HOUSTON, TEX. CD 1/7.

Houston & North Texas Motor Freight Co. Lines, 1207 Providence St., Houston, Tex., cancelled bids to have been opened Jan. 8. FREIGHT TERMINAL, HOUSTON, TEX. $250,000. CD 12/19.

Oak Meadows Corp., D. D. Hutchinson, 6319 Long Dr., Houston, Tex., Owner Builds. $300,000. circular type SHOPPING CENTER, near HOUSTON, TEX. CD 1/4.

Whipple-Dozier Constr. Co., c/o Oak Meadows Addition Office, Houston, Tex. Owner Builds. $360,000. 35 DWELLINGS, HOUSTON, TEX. CD 1/4.

W. W. McMillan, 7948 Harrisburg St., Houston, Tex., Owner Builds. $325,000. 40 DWELLINGS, HOUSTON, TEX. CD 4/7/50.

Canterbury & Brown, Home Builders Service, 7026 Lawndale St., Houston, Tex., Owner Builds. Approx. $425,000. 40 DWELLINGS, HOUSTON, TEX. CD 1/3.

The Evans Co., Inc., 618-B Lamar Blvd., Dallas, Tex., CA. Approx. $300,000. TELEPHONE BLDG., NACOGDOCHES, TEX. Southwestern Bell Telephone Co., Nacogdoches, Tex. CD 8/3.

Riverside Development Co., 4715 Calhoun Rd., Houston, Tex., Owner Builds. Approx. $465,000. 48 DWELLINGS, PASADENA, TEX. CD 1/10/50.

Fincher Constr. Co., 2523 McKinney St., Dallas, Tex., LB $318,125, 45 HOUSING UNITS, QUANAH, TEX. Quanah Housing Auth., Quanah, Tex. Bids Jan. 8. CD 12/28.

E. J. Burke & Sons, 4220 S. Zarzamora St., San Antonio, Tex. Owner Builds. $370,000. 60 frame DWELLINGS, concrete fdn., SAN ANTONIO, TEX. CD 11/3/49.

H. B. Zachary Co., Box 2570, San Antonio, Tex., LB $179,425, HEATING and POWER PLANT, SAN ANTONIO, TEX. State of Texas, c/o Bd. for State Hospitals & Special Schools, 45 and Lamar Sts., Austin, Tex. Bids Jan. 10. CD 11/14.

▲ **H. B. Zachry Co.,** Box 2570, San Antonio, Tex., CA. $1,928,000. 400 patient tuberculosis HOSPITAL, SAN ANTONIO, TEX. State of Texas, c/o Bd. for State Hospitals & Special Schools, 45 and Lamar Sts., Austin, Tex. Bids Jan. 10, awarded Jan. 15. CD 1/15, under LB.

▲ **Texas Power & Light Co.,** 914 Austin Ave., Waco, Tex., Own Forces. $3,250,000. 60,000 kw. steam GENERATING STATION at Lake Creek, near WACO, TEX. Ebasco Services, Inc., 2 Rector St., New York, N. Y. CD 3/2/51.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
February 6 California

Calif, Napa—B.A. 2/5—Housing Auth. of Napa, Shipyard Acres, Napa, sewage treatment plant at Shipyard Acres. Solano Engineers Associated, 50 Lincoln Highway, Vallejo, engrs.

† **Oregon**—CLEARING RIGHT-OF-WAY—B.A. 2/5—Bonneville Power Admin., 827 N. E. Oregon St., Portland, clear 4.6 mi. right-of-way, Westport-Cathlamet 115 kv line, Inv. 5271, Clatsop Co. Plans deposit $1.

California—B.A. 2/6—State Div. Hys., P. Wks. Bldg., Sacramento,

† **Oregon**—B.A. 2/6—U. S. Eng., City-County Airport, Walla Walla, Wash., fishway pumphouse unit sub-station for McNary Dam, Inv. CIVENG 45-164-52-58.

California—SIGNAL SYSTEM—B. A. 2/7—State Div. Hys. 120 S. Spring St., Los Angeles, full traffic-actuated signal sys. and hy. lighting and constr. channelization at intersection of Pacific Hy. with Miramar Rd. in San Diego, San Diego Co.

† **Oregon**—TRANSFORMERS—B.A. 2/20—U. S. Eng., City-County Airport, Walla Walla, Wash., nine 56,500 kva. transformers for McNary Dam, CIVENG 45-104-52-62.

▲† **Idaho**—B.A. 3/6—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., hydro-electric power house for Albeni Falls Dam, Priest River, CIVENG 45-108-52-29. Approx. $1,000,000. Plans deposit $50. Extended date. CD 1/4.

▲† **Washington**—B.A. 3/12—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, powerhouse, intake structure and appurtenances for Chief Joseph Dam, Bridgeport, CIVENG 45-108-52-28, $45,000,000. Plans deposit $50. CD 12/31.

BIDS ASKED—BUILDINGS

Calif., Oakland—WAREHOUSE—B.A. 2/1—Owens-Illinois Glass Co., 320 California St., San Francisco, (selected list bidders) warehouse. Ellison & King, 1045 Sansome St., San Francisco, engrs.

▲† **Wash., Seattle**—BARRACKS—B.A. 2/1—Dpt. Army Purchasing & Contg. Officer, Fort Lawton, Seattle, rehabilitation barracks and warehouses, $1,500,000. CD 1/15.

Calif., Placerville—SCHOOL—B. A. 2/7—Placerville Union Elementary School Dist., Placerville, school. Franceschi & Mullen, 2015 J St., Sacramento, archts. CD 9/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IDAHO—State Hy. Dpt., Boise,

Hoops Constr. Co., Twin Falls, Idaho, CA, $353,053 constr. 4 mi. Northside Hy., southeast from Wendall, Gooding Co. Awarded Dec. 21. CD 1/22/46.

† **U. S., Eng.,** Bldg. 602, City-County Airport, Walla Walla, Wash., cancelled bids to have been opened Feb. 7, training bldg. at Mountain Home Air Force Base, Serial No. ENG 45-165-52-13, MOUNTAIN HOME, IDAHO. CD 1/4.

Industrial Engineers & Contractors, 711 Middle Waterway Tacoma, Wash., LB, $137,316, reconstruct apron at Transit Shed 1, Pier 2, TACOMA, WASH. Port of Tacoma, Tacoma, Wash. Bids Jan. 8. CD 12/14.

† **Munz Bros.,** 301 N. 12 St., Sacramento, Calif., LB, $138,492 furnishing, installing pumping equipment Folsom Reservoir Proj., under Spec. No. 1580, CALIFORNIA. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Jan. 8. CD 12/19.

San Leandro Constr. Co., 16411 E. 14 St., San Leandro, Calif., LB, $134,115, Spreckles Junction Addn. Sewer, etc., ALISAL, CALIF. Alisal Sanitary Dist., foot of Wood St., Alisal, Calif. Bids Jan. 8. CD 12/13.

† **Herco Constr. Co.,** 407 Commercial Center St., Beverly Hills, Calif., CA, $103,751, rehabilitation air pictorial service at Lockheed Air Terminal, Eng 04-353-52-33, BURBANK, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Awarded Jan. 9.

▲ **Walsh Constr. Co.,** 785 Market St., San Francisco, Calif., CA, $2,304,755, water line from Fleming Hill to proposed Cordelia Reservoir and from Cache Slough to the reservoir, with pumping plant at Cache Slough, VALLEJO, CALIF. City, City Hall, Vallejo, Calif. Bids Dec. 10, awarded Jan. 8. CD 12/18, under LB.

E. E. Lowell, P.O. Box 148, Vallejo, Calif., CA, $71,550 Sch. 1, excavating and grading;

Erickson, Phillips & Weisberg, 3341 Telegraph Ave., Oakland, Calif., CA, $70,307, Sch. 2, Alt. 2 (concrete lining, etc.; $143,062, Sch. 3, concrete structures piping installations, Cordelia Pumping Plant and Reservoir, VALLEJO, CALIF. City, City Hall, Vallejo, Calif. Bids Oct. 1, awarded Jan. 8. CD 10/11, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Poston Constr. Co., 5619½ University Way, Seattle, 5, Wash., LB, $495,604, general contract, frame HIGH SCHOOL, BOTHELL, WASH. School Dist. 46, Bothell, Wash. Bids Jan. 11. CD 12/31.

Brazier Constr. Co., 309 Pontius Ave., Seattle, Wash., LB, $929,460, 1 story, steel frame HIGH SCHOOL, SEATTLE, WASH. South Central School Dist. 406, 13812 51 Ave. S., Seattle, Wash. Bids Jan. 10. CD 1/8.

▲ **Strand & Sons,** 3939 University Way, Seattle, 5, Wash., CA, $3,215,364, 5 story, 200x300 ft., rein.-con. ENGINEERING—OFFICE BLDG., SEATTLE, WASH. Boeing Airplane Co., 7755 E. Marginal Way, Seattle, Wash. Bids Dec. 11. CD 12/9, under LB.

Trewhitt Shields & Fisher, 926 Parallel Ave., Fresno, Calif., CA, $425,700, Kerman Elementary SCHOOL, KERMAN, CALIF. Kerman Elementary School Dist., 4666 Madison St., Fresno, Calif. Bids Jan. 9, awarded Jan. 11. CD 12/19.

▲ **Howard J. White, Inc.,** 44 Encina Ave., Palo Alto, Calif., LB, $1,101,138, Wilbur Junior High SCHOOL, PALO ALTO, CALIF. Palo Alto City Unified School Dist., P.O. Box 149, Palo Alto, Calif. Bids Jan. 10. CD 12/4.

▲ **Barrett & Hilp,** 918 Harrison St., San Francisco, Calif., CA. Approx. $1,000,000, SHOPS and hangar at San Francisco International Airport, SOUTH SAN FRANCISCO, CALIF. United Airlines, Powell and Post Sts., San Francisco, Calif. Bids Dec. 20, awarded Jan. 14. CD 12/11.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **United Contractors,** Fairbanks, Alaska, LB $401,000. 53x137 ft. airmen's service club, 30x81 ft. guest wing, Inv. S95-507-52-18, Eielson Air Force Base, ALASKA. U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska. Bids Jan. 10. CD 12/7.

U. S. POSSESSIONS

BIDS ASKED—BUILDINGS

Puerto Rico, Santurce—HOUSING—B.A. 2/5—Municipal Housing Auth. of the Capital of Puerto Rico, "Caserio San Antonio" Fernandez Juncos Ave., Puerta de Tierra, Proj. PR 2-7-1, foundation work, incl. timber piling for 500 dwelling units in 17 apartments, incl. fill and rough grading of entire site on "Fanguito" site, Labra St., Insular Road No. 2. Plans deposit $50. CD 5/26/43.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Newfoundland, Fogo—HARBOR IMPRVS.—B.A. 1/30—Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., harbor imprvs. Approx. $66,500. Plans deposit $20. R. Blais, c/o owner, engr.

Alta., Cold Lake—HANGARS—B.A. 1/31 — Defence Constr. (1951) Ltd., Kensington Bldg., Winnipeg, Man., 2 structural steel hangars at air base. Plans deposit $100. W. J. Melhausen, c/o owner, regional engr.

BIDS ASKED—BUILDINGS

Ont., Toronto—SCHOOL—B.A. 1/29—C. S. Cox, archt. 4925 Dundas St. W., 1 story L-shaped 122x48 ft. and 266x44 ft., concrete block, brick Crestwood Public School wings, Royal York Rd., for Etobicoke Bd. Educ., Islington, Ont. Approx. $935,000. CD 8/3

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Modern Constr. Ltd., Salisbury Rd., Moncton, N. B., CA, $228,450, supply, installation steam distr. at R.C.A.F. Station, MONCTON, N. B. Defence Constr. Ltd., 1032 Gottingen St., Halifax, N. S. P. J. Mangan, c/o owner, engr.

W. H. Cooper Constr. Co. Ltd., Hunter and Hughson Sts., Hamilton, Ont., CA, $314,519, 40/50 No. 2, vehicle garage at R.C.A.F. Station, Job 1687, HAMILTON, ONT. Defence Constr. Ltd., 441 Queen's Quay W., Toronto, 2B, Ont.

▲ **Bail Bros. Ltd.,** 49 King St. E., Kitchener, Ont., CA, $2,011,876 telecommunication school at R.C.A.F Station, KITCHENER, ONT. Defence Constr. Ltd., 441 Queen's Quay W., Toronto, Ont. R. P. Opie. c/o owner, engr.

E. Leonard & Sons, 381 York St., London, Ont., CA, Approx. $232,788 supplying, installing steam generators at R.C.A.F. Station, LONDON, ONT. Defence Constr Ltd., 441 Queen's Quay W., Toronto, 2B, Ont. R. P Opie, c/o owner, engr.

J. H. Dupuis Ltd., 4324 Jeanne d' Arc St., Montreal, Que., CA, Approx. $490,951, conversion of buildings to married quarters at R.C.A.F. Station, LACHINE QUE. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. M. P. McAndrew, c/o owner, engr.

Piggott Constr. Co. Ltd., 502 5 Ave. N., Saskatoon, Sask., CA, $157,474, water pumphouse and sewage treatment plant at R.C.A.F. Station, SASKATOON, SASK. Defence Constr. Ltd., 440 Kensington Bldg., Winnipeg, Man. CD 8/20.

BUILDINGS

LOW BIDS AND CONTRACTS

Vancouver Associated Contractors Ltd., 815 West Hastings St., Vancouver, B. C., CA, $492,513, 66 HOUSES in Fraser View Housing Development, VANCOUVER, B. C. Central Mortgage & Housing Corp., 360 Homer St., Vancouver, B. C. Bids Jan. 8, awarded Jan. 11. CD 12/12.

Farmer Constr. Ltd., 2925 Douglas St., Victoria, B. C., CA, Approx. $177,970, MAINTENANCE and STORAGE BLDG. at R. C. N. Station, VICTORIA, B. C. Defence Constr. Ltd., 360 Homer St., Vancouver, B. C. Bids Nov. 27. CD 11/1.

Kenney Constr. Co. Ltd., P.O. Box 380, Yarmouth, N. S. CA $319,832, ARMORY, YARMOUTH, N. S. Defence Constr. Ltd., 1032 Gottingen St., Halifax, N. S. P. J. Mangan, c/o owner, engr.

Putherbough Constr. Co. Ltd., 320 Colbourne St., London, Ont., CA, $157,400, GREENHOUSE and HEADER HOUSE and COLD CHAMBERS and STORAGE UNIT at Science Service Laboratory, University of Western Ontario, LONDON, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Jan. 9. CD 12/27.

A. N. Robertson Ltd., 57 Bloor St. W., Toronto, Ont., CA $400,000, 4 story, 200x230 ft., concrete, brick CENTRAL STORES BLDG., TORONTO, ONT. Toronto Electric Comrs., 14 Carlton St., Toronto, Ont. Bids Dec. 19, awarded Jan. 14. CD 12/5.

Verreault Ltee, 517 Cherrier St., Montreal, Que., CA Approx. $520,000, 4 story, 123x174 ft., 58 suite, rein.-con., frame, steel APARTMENT, 1320 Lombard Crescent, Mount Royal, MONTREAL, QUE. Frank Sura, 42 Vivian Ave., Montreal, Que. L. N. Booth, 3110 Van Horne Ave., Montreal, Que., archt.

▲ **Francois Jobin, Inc.,** 95 St. Therese St., Quebec City, Que., CA. Approx. $1,055,000, rehabilitation of PLANT for Canadian Arsenals Ltd., VALCARTIER, QUE. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. CD 11/27.

▲ **Martin Furman,** 2052 St. Catherine St. W., Montreal, Que., Own Forces, $2,225,000, 250 HOUSING units, incl. cottage and bungalow type dwellings on new streets near Cote de Liesse Rd., VILLE ST. LAURENT, QUE.

LATIN AMERICA

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Constructora Bechtel, S. A.,** Panama City, Panama and Puerto Ordaz, Venezuela, CA, Cerro Bolivar Project, mine facilities, 90 mi. railroad and highway and port and ore loading facilities, incl. power plants, material handling, housing, water supply and sewerage systems, VENEZUELA. Orinoco Mining Co., 25 Broad St., New York 4, N. Y., U. S. A. CD 10/9/50.

(Proposal Advertisements see pp. 94 & 95)

OFFICIAL PROPOSALS

RATE: THE RATE FOR OFFICIAL PROPOSAL ADVERTISING IS $1.25 PER LINE (OR FRACTION) PER INSERTION.

CLOSING DATE: FRIDAY 10:30 A. M. FOR THE ISSUE DATED THE FOLLOWING THURSDAY.

SEND COPY TO: OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 36, N. Y.

Bids: February 5, 1952

Electric Substations and Transformers

CONTRACT 414

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A. M., Eastern Standard Time, on Tuesday, February 5, 1952, for Contract 414, for furnishing, testing and delivering two 150-Kva. indoor unit substations and two 45-Kva. indoor and three 15-Kva. outdoor transformers for the Neversink and East Delaware intake chambers and the Downsville release water chamber of the Delaware aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of two thousand dollars ($2,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawing, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: February 19, 1952

Sewerage System, Sewage Treatment Plant, Sewage Pumping Station and Force Mains

For

SHIPPENSBURG BOROUGH AUTHORITY

At

Shippensburg, Pennsylvania

Sealed proposals will be received at the Shippensburg Municipal Building, 135 East King Street, Shippensburg, Pennsylvania, by Paul B. Noftsker, Secretary of the Shippensburg Borough Authority, until 7:00 P.M., E.S.T., Tuesday, February 19, 1952, for furnishing all necessary labor, materials, and equipment, and performing all work for the construction of SEWERAGE SYSTEM, SEWAGE TREATMENT PLANT, SEWAGE PUMPING STATIONS AND FORCE MAINS. Bids will be publicly opened and read at 7:30 P.M., E.S.T., Tuesday, February 19, 1952, in the Shippensburg Borough Council Meeting Room on the second floor of the Shippensburg Municipal Building at 135 East King Street, Shippensburg, Pennsylvania. Separate proposals will be received upon five (5) parts of the project as follows:

Contract One—CONSTRUCTION OF A SEWERAGE SYSTEM.

Contract Two—GENERAL CONSTRUCTION OF A SEWAGE TREATMENT PLANT, SEWAGE PUMPING STATIONS AND FORCE MAINS.

Contract Three—PLUMBING WORK IN CONNECTION WITH CONSTRUCTION OF A SEWAGE TREATMENT PLANT.

Contract Four—HEATING WORK IN CONNECTION WITH CONSTRUCTION OF A SEWAGE TREATMENT PLANT.

Contract Five—ELECTRICAL WORK IN CONNECTION WITH CONSTRUCTION OF A SEWAGE TREATMENT PLANT AND SEWAGE PUMPING STATIONS.

Each proposal shall be accompanied by a certified check in amount not less than five (5) per cent of the bid total, or a bid bond in amount not less than seven and one-half (7½) per cent of the bid total, all in accordance with provisions contained in the Specifications.

Copies of the Contract Documents, including Plans and Specifications will be available for inspection at the office of Gannett Fleming Corddry and Carpenter, Inc., 600 North Second Street, Harrisburg, Pennsylvania, and at the office of Paul B. Noftsker, Secretary of the Shippensburg Borough Authority, in the Shippensburg Municipal Building, at 135 East King Street, Shippensburg, Pennsylvania; or they may obtained from the first of the above stated places upon deposit of the following amounts for each set:

Contract One—SEWERS, $25.00.

Contract Two—GENERAL CONSTRUCTION, $20.00.

Contract Three — PLUMBING WORK, $10.00.

Contract Four—HEATING WORK, $10.00.

Contract Five — ELECTRICAL WORK, $10.00.

Full refund will be made to actual bidders for return of one of each set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets, in good condition within the same period, will be fifty (50) per cent of the deposit.

N.P.A. controlled materials rating DO-T-8 issued for this Project.

SHIPPENSBURG BOROUGH AUTHORITY,
Shippensburg, Pennsylvania

Gannett Fleming Corddry & Carpenter, Inc., Engrs.,
600 North Second Street,
Harrisburg, Pennsylvania

Bids: February 18, 1952

Repaving of Park Avenue

in the

CITY OF LONG BEACH, N. Y.

1. Sealed proposals for the repaving of Park Avenue from Long Beach Blvd. westward to Laurelton Blvd., more or less, in the City of Long Beach, N. Y., will be received by the City Manager until 2:30 o'clock P.M., E.S.T., February 18, 1952, in the office of the City Manager, City Hall, Long Beach, N. Y., and there publicly opened and read immediately thereafter.
2. The work will consist of providing all labor, materials, equipment and incidentals required for the repaving of Park Avenue from Long Beach Blvd. to Laurelton Blvd., more or less, with the following:
   6" water bound macadam base and a 2½ inch Bituminous wearing surface, or one of the following alternates:
   a. 6" concrete base with 2½" bituminous wearing surface.
   b. 6" dry bound stone base with 3" dry bound penetration macadam and 1" Bituminous wearing surface.
3. Plans, Specifications, bidding and contract documents may be examined at the office of the City Engineer at City Hall, Long Beach, N. Y., and obtained from the latter upon deposit of $25.00 per set.
   Full refund will be made to actual bidders for return of one (1) set, in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be fifty percent (50%) of the deposit.
4. All proposals must be on the form contained in the specifications as furnished by the City.
5. All bids must be accompanied by a Certified Check or Acceptable Bidder's Bond in the Amount of Ten (10%) percent of the amount of the Bid, made payable to the City Treasurer, City of Long Beach. Said checks will be returned to all except the three (3) lowest bidders, not later than ten (10) days after opening of bids.
6. The successful bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the contract and upon the payment of all persons supplying labor and furnishing materials on the construction of the work.
7. No bidder may withdraw his bid within 45 days after closing date for receipt of bids.
8. The City Council reserves the right to reject any or all bids and to waive any informality in the Bid, and to accept that proposal which in its judgment best serves the interests of the City.

CITY OF LONG BEACH, NEW YORK
By: Bernard M. Bailey
Acting City Manager

Dated: January 16, 1952.

Bids: February 21, 1952

Passenger Terminal

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
CONTRACT NA-170.035

Sealed proposals for the construction of the Passenger Terminal at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 2:30 P.M. Thursday, Feb. 21, 1952, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $100 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, January 24, 1952

U. S. Government

General Services Administration, Public Buildings Service, Washington, D. C., Jan. 11, 1952.—Sealed bids in duplicate for extension and remodeling (except elevator and dumbwaiters) of the United States Public Health Service Hospital (formerly U. S. Marine Hospital) at Fourteenth Avenue S. and Judkins Street, Seattle, Washington, will be received until 1 P.M., East-Standard Time, on Feb. 21, 1952, in Room No. G-341-B, General Services Building, Washington, D. C., and then publicly opened in Room No. G-341-D. Bid guarantee is required. If the amount of the contract exceeds $2,000, U. S. Standard Form No. 23, Construction Contract, will be used and performance and payment bonds will be required. Upon request one set of Prebid Documents and four sets of drawings and specifications will be supplied without charge to each general contractor interested in bidding on the complete project, all of which must be returned. Not more than six additional sets of drawings and specifications may be obtained by general contractors at a charge of $20 per set, which will be refunded for each set returned in good condition within 30 days after the bids are opened. Checks offered as payment must be made payable to the order of the Treasurer, U. S. Upon request and in the discretion of the undersigned one set of drawings and specifications will be furnished to builders' exchanges, chambers of commerce and other similar organizations, with the understanding that the set will be retained on their premises and made available for inspection by any interested subcontractor or material firm. Bidding material may be obtained at Room No. 1304 General Services Building, 19th and F Streets, N. W., Washington 25, D. C., Phone EXecutive 4900, Extension 2397.

OFFICIAL PROPOSALS

Bids: January 30, 1952

Soil Explorations and Foundations

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on January 30, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE NEW YORK STATE THRUWAY, CATSKILL SECTION, SUBDIVISION NOS. 6 AND 7, RAVENA TO ROUTE 23A, GREENE COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-25.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) G. L. Nickerson, District Engineer, 353 Broadway, Albany 1, N. Y.
(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $18,400.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $920.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

Bids: February 5, 1952

Chlorinating Equipment

CONTRACT 329

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, February 5, 1952, for Contract 329, for furnishing, delivering, installing and testing chlorinating equipment for the Rondout, West Branch and Boyds Corner effluent chambers of the Delaware aqueduct, all as set forth in the specifications. The locations of the proposed work are in the Towns of Wawarsing, Ulster county, Carmel, Putnam county and Mount Pleasant, Westchester county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of twenty thousand dollars ($20,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

OFFICIAL PROPOSALS

Bids: January 30, 1952

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on JANUARY 30, 1952 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 2				
		L. Ketchum, District Engr., 109 No. Genesee St., Utica, N. Y.				
		DISTRICT No. 3				
		William Robinson, District Engr., Weigh Lock Bldg., Syracuse 1, N. Y.				
9 Counties 4 Cities	FARC 52-12 FARC 52-13	Installation of Automatic ..... Recording Traffic Counters in Dist. 2 & 3 Proj. SWHP 1(8)		Installation of 20 Aut. Recording Traffic Counters	$2,200 Plans $15	$39,600
		DISTRICT No. 3				
		William Robinson, District Engr., Weigh Lock Bldg., Syracuse 1, N. Y.				
Cayuga	FARC 52-7	Montezuma-Cayuga-Union Springs Pt. 1, S. H. 8518 Proj. F-1059(1)	2.71 Mi.	10" Unreinf. Cem. Conc. Pavt. 24'-36' Wide	$16,000 Plans $10	$316,000
Onondaga	FARC 52-8	Syracuse-Lafayette, S.H. 5365 Proj. FI-UI-397(3)	2.13 Mi.	Asph. Conc. Type 2A	$45,000 Plans $10	$752,000
		DISTRICT No. 4				
		A. R. Mulligan, District Engr., Barge Canal Terminal, Rochester 1, N. Y.				
Genesee	OT 52-2 RC 52-16 ST 52-2	N. Y. State Thwy., Ontario Sect. Sub. 5B & 6A Stafford-South Byron-Byron Pt. 1 S. H. 1865 Leroy-Brockport Pt. 3 SH 1780 West Bergen Rd. C. R. 31 North Road C. R. 40	11.47 Mi.	9" Cem. Conc. Pavt. 2 @ 25' Wide = 9.81 Mi. Asph. Conc. Ty. 1A Opt. = 1.32 Mi. Misc. Work = 0.34 Mi.	$250,000 Plans $50	$4,169,000
		DISTRICT No. 6				
		H. F. Brumm, District Engr., State Office Bldg., Hornell, N. Y.				
Schuyler	FARC 52-10	Watkins-Lodi Pts. 1, 2 & 3, S. H. 8110-8035 Proj. F-626(3)	7.08 Mi.	Asph. Conc. Ty. 1A, Opt.	$35,000 Plans $15	$615,000
		DISTRICT No. 7				
		Roy F. Hall, District Engr., 444 Van Duzee St., Watertown, N. Y.				
4 Counties 1 City	FARC 52-14	Installation of Automatic ..... Recording Traffic Counters in District 7 Proj. SWHP 1-(8)		Installation of 8 Aut. Recording Traffic Counters	$800 Plans $10	$14,560
		DISTRICT No. 8				
		J. S. Bixby, District Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Columbia & Dutchess	FARC 52-6	Hillsdale-Copake Iron Works S. H. 5347 Copake Iron Works-Copake S. H. 5645 Copake-Mt. Riga Pts. 1 & 2 S. H. 8009 Millerton-County Line S. H. 709, Proj. F-350(20)	7.83 Mi.	10" Unreinf. Cem. Conc. Pavt. 24' Wide	$90,000 Plans $25	$1,735,000
Dutchess	RC 52-11	Barrytown-Red Hook-Rock City S. H. 1312	0.40 Mi.	Storm Sewer	$1,500 Plans $10	$27,000
Dutchess	RC 52-9	Hopewell Junction S. H. 9229	0.15 Mi.	Asph. Conc. Ty. 1A Opt.	$1,000 Plans $10	$17,000
Orange	RC 52-2	Tuxedo-Harriman Pt. 1 S. H. 8258	0.83 Mi.	9" Unreinf. Cem. Conc. Pavt. (Widen.)	$7,900 Plans $10	$143,000
Rockland	HT 52-1	N. Y. State Thruway-Hudson Sect.-(Tappan Zee Bridge)	1.46 Mi.	Rein. Conc. Rig. Frame Bents & Miscell. Work	$350,000 Plans $10	$6,211,000
		DISTRICT No. 10				
		J. J. Darcy, District Engr., Montauk Highway at Little East Neck Rd., Babylon, Long Island, N. Y.				
Bronx	FAMDE 52-1	Major Deegan Expressway Ext. Contract 3A Proj. U-1082(9)	0.36 Mi. (Access 0.30)	Grading Expy. = 0.36 Mi. (Grad. & Misc. Work Access = 0.30 Mi.) Hy. Sep. 2 Sp. Plate Girder 121' & 123' Hy. Sep. Plate Girder 94' Sp., Hy. Sep. Rigid Frame 30' Sp.	$155,000 Plans $50	$2,815,000
Bronx	FAMDE 52-2	Major Deegan Expressway Ext. Contract 2A. Pkwy. Conn. Proj. U689(19)	1.67 Mi.	9" Unreinf. Cem. Conc. Pavt. 2 @ 24' Wide = 1.41 Mi.-Misc. Work = 0.26 Mi. Ped. Underpass 36'-8" Rigid Frame Hy. Sep. 2 Sp. Conc. Arch 53'-11" & 30'-7½"	$115,000 Plans $50	$1,956,000
Suffolk	FASS 52-2	Nesconset-Port Jefferson Station C. R. 80	7.64 (1.92 Int. Rds.)	Asp. Conc. on Bit. Base = 7.54 Mi. Cem. Conc. Pavt. = 0.10 Mi. (Int. Rds. Asp. Conc. = 1.09 Mi.) (Int. Rds.Cem. Conc. Pavt. = 0.09 Mi.) (Int. Rds. Asp. Tr. Earth = 0.53 Mi.)	$77,000 Plans $25	$1,408,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS
(Continued from the preceding page)

Bids: February 27, 1952

Miscellaneous Work in New Jersey

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

Boiler breeching, mechanical piping, platforms and ladders, and electrical work for the Reformatory for Women at Clinton, New Jersey;

Boiler breeching, mechanical piping, platforms and ladders, and electrical work for the Tuberculosis Sanatorium at Glen Gardner, New Jersey;

Boiler breeching, mechanical piping, platforms and ladders, and electrical work for the State Prison Farm at Bordentown, New Jersey;

Boiler breeching, mechanical piping, electric work, structural steel and general construction at the New Jersey State Hospital at Trenton, New Jersey; Platforms and ladders only for the State Colony at Woodbine, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Wednesday, February 27, 1952 at two (2:00) o'clock, and will be opened and read immediately thereafter.

Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract, of a company authorized to do business in the State of New Jersey.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation, Sealed bids (Invitation No. DS-3639) will be received by the Bureau of Reclamation, Denver, Colorado, until February 19, 1952, and then publicly opened for furnishing four 5-foot by 6-foot high pressure gates with four 110,000 pound hydraulic hoist, six conduit linings, and appurtenances for Jamestown Dam, Missouri River Basin Project, North Dakota. Delivery is desired within 180 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation, Sealed bids (Specifications No. DC-3634) will be received by Bureau of Reclamation, Coulee Dam, Washington, until February 14, 1952, and then publicly opened for painting for Grand Coulee Dam and Right Power Plant, Columbia Basin Project, Washington. The work is situated at Coulee Dam, Washington. The principal item is a lump-sum item for painting galleries in the dam; walls, ceilings, and facilities in the right power plant; and the 150,000 gallon water tank, with paint furnished by the government. Time allowed for completion will be 300 days. For particulars, address Bureau of Reclamation, Coulee Dam, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

EMPLOYMENT

GENERAL SUPERINTENDENT

Mid-South metal working plant desires General Superintendent with plate and structural experience for supervision of approximately 150 men. Advise when available and salary expected in first letter.

P-3075, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ELECTRICAL ENGINEER

As Assistant Superintendent for Midwest Municipal electric and water utility. Experience in design, planning, and operation of 2400/4160 volt distribution systems. Knowledge and experience in steam generating plants desirable. Age 32-40 years.

P-2880, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

CIVIL ENGINEER with a minimum of 3—5 years experience in the design of sanitary sewers. Must be thoroughly competent to take over the complete design of a sewer system for a population of 60,000 in all details. Work is located at Morrisville, Pennsylvania. Phone Manhasset 7-0777, C. A. Monroe, 1900 Northern Boulevard, Manhasset, New York.

ELECTRICAL ENGINEER—Position open in Eastern United States for young man with actual experience in distribution and electrical maintenance work. Take off and estimating experience helpful. Excellent opportunity for advancement. This position is permanent. Send experience record, education and reference with application. Salary open. P-2885, Engineering News-Record.

ENGINEER-SUPERINTENDENT — for growing building construction firm on Long Island. Excellent opportunity for man completely familiar with all phases of a competitive business and who can produce results. P-3040, Engineering News-Record.

ENGINEER SUPERVISOR—Wanted for home office of general construction company. Must be completely familiar with estimating, bidding and cost analysis on both heavy construction and building. Only applicants with proven, broad experience will be considered. Applicant must have had previous experience in the field as project manager or project superintendent. Salary open. Send complete resume. P-2884, Engineering News-Record.

EXPERIENCED AND Qualified estimator for general building construction. Must be thoroughly familiar with building plans and experienced in pricing and purchasing for building construction. Applicant should submit a proven experienced record. A very attractive proposition can be offered to a qualified man preferably under 40. Location in Central Texas. P-3069, Engineering News-Record.

MATERIALS ENGINEER—C.E. experienced in highway materials, permanent, good salary and opportunity. Give full information. P-2943, Engineering News-Record.

PROJECTS MANAGER'S Assistant—for office and field cordination, design and construction, process industry plants. Unusual opportunity in growing department of large and long established construction firm. P-2901, Engineering News-Record.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of structures. Vacation, group insurance, good working conditions. Only top quality men. Send complete written information. Bristol Steel & Iron Works, Inc., Bristol, Virginia-Tennessee.

DISTRICT MANAGERS WANTED

Midwestern equipment manufacturer needs district managers for distributor and dealer contact and other field sales work in several territories. Full time traveling. Products are truck equipment, roadbuilding and excavating machinery. Applications are invited from qualified men with field sales experience in these lines.

SW-2671, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Illinois

WANTED

Civil Engineers and Topographic Draftsmen for investigation and planning of flood and low flow control and related projects. Experience in hydraulics and hydrology desirable for engineers, but not necessary. Permanent positions, opportunity for advancement. Address inquiries to

State of Illinois, Division of Waterway
201 West Monroe Street, Springfield, Illinois

HIGHWAY ACCOUNTANT
WANTED

Accountant experienced in highway accounting and knowledge of Spanish language wanted for Ecuador, South America. Minimum 2 year contract. Salary $6,000. Free of local taxes. Send experience records, references, etc.

Suite 52, 1737 "H" Street, N. W.
Washington, D. C.

POSITIONS VACANT

SUPERINTENDENT: MUST be experienced in estimating, negotiating field and especially supervise "Guniting", Pressure Grouting, Concrete and Masonry Restoration. Also New Construction for Railroads, Utilities and Industrial Plants. State age and experience. Salary open. P-2978, Engineering News-Record.

WANTED: CONSTRUCTION Superintendent—Experienced in Asphalt Resurfacing, Concrete Pavements, Sewer Work, Macadam Bases and Excavation to direct operations of long-established contractor in Chicagoland area. Must be aggressive and cost conscious. Give resume of experience and salary requirements in reply. Position open immediately. P-3042, Engineering News-Record.

WANTED FOR Main Office Engineer-Executive thoroughly experience in Heavy Construction work. Must also have contacts and sales experience. Only applicants with exceptional experience in this line will be considered. Salary open. Send resume. P-3059, Engineering News-Record.

WANTED IMMEDIATELY Superintendent thoroughly experienced to supervise on large canal and levee project in Southeast. Must be good organizer, producer, know men and equipment. Write stating qualifications. P-2925, Engineering News-Record.

WANTED—YOUNG Graduate Civil Engineer, for position in Engineering Corps of large eastern railroad. Experience desirable but not essential. Give full information in first letter. P-3015, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

CIVIL ENGINEER, 32, B.S. and M.S. degrees (C.E. and soil mechanics) varied design, construction and testing experience on earth dam, highway, airfields, reinforced concrete structures. Some soils research and foundations. PW-3019, Engineering News-Record.

CIVIL ENGINEER—Building Official 33, married, wide experience construction, municipal work, good organizer, desires midwest. PW-3036, Engineering News-Record.

(Continued on the opposite page)

POSITIONS WANTED

(Continued from the opposite page)

CIVIL ENGINEER, California Registered, 30, broad design & field experience. PW-3026, Engineering News-Record.

CIVIL ENGINEER: Consulting, Registered; 20 years experience—Sewerage systems. Water supply, Town Planning, Municipal Engineering Projects. Emphasis on connection of responsibility or future partnership possibility. PW-2870, Engineering News-Record.

CIVIL ENGINEER—Graduate, Registered in Ohio, age 48, 22 years field and office experience in highway, railroad, water, sewer, and general building construction. Presently employed in Responsible position, desires change. PW-2953, Engineering News-Record.

CONSTRUCTION EXECUTIVE: 46, New York Registration, with wide experience in planning, coordinating and directing the development and construction of industrials, public works and transportation facilities as Chief Engineer-Estimator and Contract-Construction Manager, is interested in a career job offering economic security. PW-2871, Engineering News-Record.

CONSTRUCTION OR Projects Manager available February 1st, with years of diversified experience in all phases of heavy construction. Successful record contact negotiations. Familiar with CPFF and overseas contracts. If necessary can furnish well trained key personnel for both office and field. References furnished. PW-2926, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT: 30 years on all types of buildings, sewage plants, bridges. Carpenter by trade—know forms and costs. Good organizer, available now. PW-3069, Engineering News-Record.

DO YOU Need a Structural Engineer who can get things done? Masters Degree from Yale, 3 years power plants and industrial structures, 3 years Broadcast electronics. Have supervised and "coddled" jobs, clients and employees. Married, etc. Stable yet energetic. Present salary high. No restrictions. PW-3017, Engineering News-Record.

ESTIMATOR-MANAGER Construction. All types buildings, concrete and masonry structures. Top flight and practical field man. Engineering education and thirty years experience. Now employed Middle Eastern States but wants connection with medium size contractor who needs and will pay for know-how. PW-3014, Engineering News-Record.

GENERAL CONTRACTOR'S Executive, broad experience in all phases building and heavy construction, equally at home in field or office, seeks connection requiring top man to assume full responsibility, where scope will permit full use of ability. PW-3033, Engineering News-Record.

GENERAL SUPERINTENDENT 48—25 years experience—heavy construction, highways, airports, bridges, powerhouse, cofferdams, tunnels, sewage systems, heavy industrials, have following of experienced men. Now employed but available for long term employment. PW-3023, Engineering News-Record.

GRADUATE ENGINEER, Age 27, experienced in building construction as Estimator and Field Engineer. Desires position with civil engineer or contractor in Florida. PW-3022, Engineering News-Record.

HYDRO-ELECTRIC Engineer, supervise and coordinate all features of design of projects. Desires contacts. PW-3018, Engineering News-Record.

PROJECT ENGINEER, Graduate C.E., N. Y. State license, 25 years experience technical administration, planning and direction design and construction. Recently completed one year European assignment, presently employed, domestic salary $12,000. Interested preferably in position with Consulting Engineering Organization; will consider foreign assignment. PW-3025, Engineering News-Record.

PROJECT ENGINEER, M.E., P.E., 12 years diversified experience in chemical plant and oil refinery design and construction desires permanent position with prime user or contractor. Favorable consideration given to positions demanding extensive travel, family type, from New York office. Address PW-3070, Engineering News-Record.

PROJECTS MANAGER, Construction Supt., Engineer 47, sober, reliable. 25 years experience supervising commercial, Industrial, Mechanical and public buildings. Southeast preferred. PW-3058, Engineering News-Record, New York 36, N. Y.

(Continued on the following page)

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** EQUIPMENT: USED OR RESALE

UNDISPLAYED RATE

$1.50 a Line, minimum 3 lines. To figure advance payment count 5 average words as a line.
Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.
POSITION WANTED and Individual Selling Opportunity undisplayed rate is one-half of above rate, payable in advance.
Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.
Replies are forwarded each day as received at each of the offices mentioned without additional charge.
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED RATE

The advertising rate $14.25 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.
An advertising inch is measured ⅞ inch vertically on one col. - 3 col.—30 inches to a page. E.N.R.

New Advertisements received by January 21st will appear in the January 31st issue.

ENGINEERS
WANTED

The Tennessee Valley Authority wants Civil, Structural, Mechanical, Electrical, and Office Engineers and Estimators. The work is design and construction of large steam-electric and hydroelectric projects and transmission systems. Salaries start at $3600, $4350, and $5150 for 40-hour week. Some work is scheduled more than 40 hours and pays overtime. All jobs carry automatic within-grade increases for satisfactory service, liberal vacation leave, sick leave, and retirement benefits. Design and estimating jobs are in Knoxville and Chattanooga, Tennessee. Field and office engineering jobs are at construction sites in the Tennessee Valley area and at Paducah, Kentucky.

Write the

TENNESSEE VALLEY AUTHORITY
Division of Personnel
Knoxville, Tennessee

DESIGNERS

We need men with experience as:

Structural Designers
Concrete Designers
Electrical Designers
Piping Designers
Checkers

Men should have experience in Blast Furnaces, Steel Mill, Oil Refinery or other Heavy Structural Design.

Positions available in our offices at Cleveland, Ohio and Union, New Jersey.

We pay among highest rates plus annual profit-sharing bonus.

Our continuous expansion and growth offers many fine future opportunities.

WRITE.

ARTHUR G. McKEE & Co.
2300 Chester Ave., Cleveland 1, Ohio

Permanent Positions Open to
ENGINEERS

. . . after training at full-time pay . . . as

Consultants in Fire Protection Engineering

to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.

Write complete qualifications to:
P-2807, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED FOR CHEMICAL PLANT LOCATED IN SOUTH
ESTIMATORS

Must be experienced engineers, under 45, familiar with Refinery and Chemical Plant design and capable of estimating process equipment installations from flow diagrams and specifications. Give full information, experience record and salary expected in first letter. All replies confidential.

P-2907, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

WANTED
Construction Superintendent

Permanent position for man experienced in superintending Stone Quarry, Pile driving, Road, Levees and Concrete construction. Give full physical and personal characteristics. Recent Photo. Detailed experience record of past employment, duties, salary and references. Location in Illinois.

P-3053, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

CIVIL ENGINEER

with a minimum of 3-5 years experience in the design of sanitary sewers. Must be thoroughly competent to take over the complete design of a sewer system for a population of 60,000 in all details. Work is located at Morrisville, Pennsylvania.

Phone Manhasset 7-0777
C. A. MONROE
1900 Northern Boulevard, Manhasset, N. Y.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-first year. Write today.*

WILSON *Engineering Corp.*
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

POSITIONS WANTED
(Continued from the preceding page)

STRUCTURAL ENGINEER (Reg. PA) would like to negotiate prime or sub-contracts percentage or hourly fee basis to design and plan reinforced-concrete, wood, steel structures. Familiar moment-distribution, sidesway, column-analogy; ACI, AISC Codes, etc. Complete architectural, electrical, mechanical design services also available. All work performed near Harrisburg, Pa. PW-3029, Engineering News-Record.

SUCCESSFUL TOP Monumental building and heavy construction man presently in charge of all work for internationally known long established construction company desires immediate change. PW-2585, Engineering News-Record.

SUPT. TUNNELS. Open cut and extensive experience with Hard Rock. PW-2863, Engineering News-Record.

TRACK AND Special track-work Specialist. Railroad, subway, elevated, street railway and special track-work experience. Tee rail and Girder rail work. Broad engineering and construction experience, especially in the transportation field. Thirty-five years' experience in private industry and government activities in design, construction and economic fields. Availability is dependent upon the location and incentives offered; whether on a full-time or part-time basis. PW-3034, Engineering News-Record.

Export Management

Large Import and Export Organization with own offices in Brazil and Argentina and excellent connections all over the world, large plant in USA engaged in edible oil refining, producers of fatty acids and allied commodities, seeks connection with manufacturers of Road Building Material.

RA-3041, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

SELLING OPPORTUNITY WANTED

SALES REPRESENTATIVE Available for St. Louis district. Construction, Building, Industrial Equipment, Tools. Experienced salesman and organizer. RA-2952, Engineering News-Record.

WORK WANTED

STRUCTURAL DETAILING Wanted by established responsible firm. WW-3024, Engineering News-Record.

SPECIAL SERVICE

Divers, equipped and experienced for all underwater operations—Demolition our specialty. McAlinden Construction Co., Hopewell, New Jersey

FOR SALE
CIVIL ENGINEERING and SURVEYING BUSINESS
Located in Chicago and grossing between $70,000 and $80,000 per year. Will pay three principals $10,000 annual income per person. $30,000 in records and field and office equipment. Asking $60,000. Terms can be arranged.
BO-2865, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

CATERPILLAR D-7 FOR SALE
1945 Diesel tractor Serial No. 474750 with LeTourneau Cable Blade. Good Condition.
V. CIAMPI & SON, INC.
526 N. Terrace Ave. Mt. Vernon, N. Y.
MO 8-7179

WANTED

WANTED
STEAM ROAD ROLLER
STEAM FIRE ENGINE
Also interested in other items of steam industrial, railway, etc. machinery. The older the better. Not necessary be in operating condition as wanted for museum purposes.
R. H. Whisler,
Room 615
511 Locust St. St. Louis, Mo.
Phone Chestnut 4474

WANTED TO BUY
End-Dump Euclids
Northwest 80-D and #6.
Shovels
New or very late models
A. L. DOUGHERTY CO.
Guaranty Bldg. Indianapolis, Ind.
Phone: Lincoln 3840

WANTED
SLOPE HOIST
SINGLE CYLINDER
For Mine Slope
Capable of minimum 10,000 lbs. pull.
Give full details.
MATERIAL SERVICE CORPORATION
33 N. LaSalle Street
Chicago 2, Illinois

WANTED
1 Ingersoll-Rand class "ES" air compressor with or without electric motor 300 CFM or larger.
1 Large air receiver.
1 Drill bit sharpener.
W-2979, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

WANTED
1—#12 CATERPILLAR GRADER also
1—BARBER GREENE ASPHALT PAVER
Please furnish all details—Price—Age—Condition
P. O. Box #95 Perkasie, Pa.
Phone 2081

Wanted
1 BUCKET AND BLADE
For a TD9 International dozer
Box W-2927, Engineering News-Record
330 W. 42nd Street, New York 36, N. Y.

WANTED
LOW-BED TRAILER
Minimum Capacity at Least Fifty Tons
W. J. HALLORAN TRUCKING CO.
303 Chapman Street Providence, R. I.

WANTED—DRYER
Approx. 5 ft. dia. x 20-25 ft. long, complete with 4 trunnion rollers with bearings, two roller rails, drive gear & pinion thrust bearing.
A. M. BRADLEY
235 Rialto Bldg. Kansas City, Mo.
Ba. 1209

SEARCHLIGHT SECTION

This index is published as a convenience to the readers. Every care is taken to make it accurate. But SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

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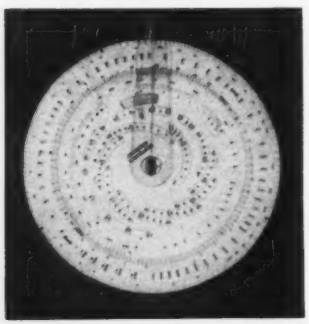

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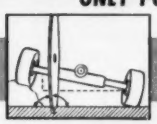

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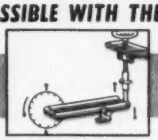

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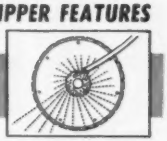

4. Patented Spray Control Its value is measured in increased Blade Life.

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New Products . . .

flat glass application. It absorbs the red portion of the solar spectrum so that the light transmitted through it is the easier portion on the eyes. While it absorbs most of the solar infrared and ultraviolet rays, at the same time it transmits 72 to 74 per cent of daylight.

Architects and designers will be pleased to know of its intended use in southern and western exposures, as well as its great value in certain industrial and commercial buildings, where penetration of too much solar heat through window openings is dangerous or inconvenient. Another use will be for show window glazing where perishables are displayed. PITTSBURGH PLATE GLASS COMPANY, 632 DUQUESNE WAY, PITTSBURGH, PENNA.

Oil-resistant hose

The greatest single enemy of rubber is petroleum and its by-products. Now comes a new industrial-type hose known as Abrasoflex which is both oil- and abrasion-resistant. Abrasoflex hose is recommended for eight industrial applications including air, welding, cold water, hot water, paint spraying, oil spraying, grease and gasoline.

The hose is available with a black cover, with 1- or 2-braid, high-tensile reinforcement in seven sizes ranging from ¼ in. to 1 in. inside diameter, suitable for 250 lb. working pressures. MERCER RUBBER CORPORATION, 66 READE STREET, NEW YORK, N. Y.

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(Continued on page 112)

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= your product designers' know-how + ROCKFORD clutch engineering experience
If our quarter century of clutch engineering experience can help make your power transmission designing and specifying job easier, we urge you to consult ROCKFORD engineers freely. They are continually helping design engineers to solve operation efficiency, dependability and economy problems—in thousands of different kinds of machines—thru proper application of ROCKFORD clutches, power take-offs and speed reducers.
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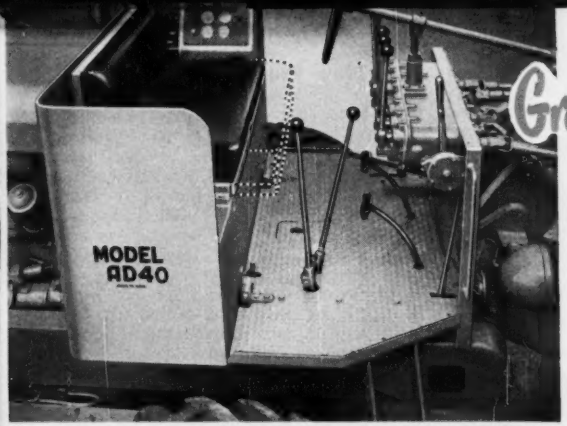
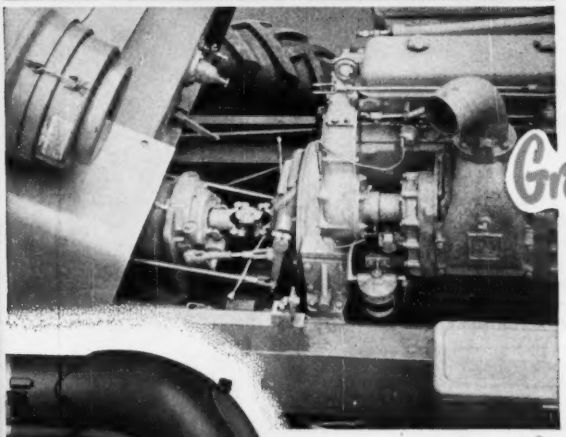
104 Brake hp.

Built to handle All Jobs —FASTER, EASIER



Great New operating ease

No other grader has been designed with the operator more in mind. **Unmatched Visibility**—Single tubular frame from front to platform, new lift cases, low control box and tapered platform give operator a full view of what he is doing. **Feather-Touch Steering**—New hydraulic booster system, fully enclosed in the frame, provides effortless steering with positive control even under toughest conditions. **All-Around Comfort**—Roomy platform, adjustable seat (as shown) and simple controls offer any size operator true comfort—sitting or standing.



Great New service simplicity

Here's maintenance and repair accessibility second to none. Combined fuel tank and seat unit tilts forward for easy access to clutch, transmission and drive shaft. Transmission can be removed without disturbing floor plates. Power take-off and hydraulic pump are mounted outside the dash.

Great New performance

Add these outstanding operator and service advantages to the exclusive Allis-Chalmers features that include ROLL-AWAY* Moldboard—extra high clearances from front to rear—shock-absorbing tubular frame—dependable General Motors 2-Cycle diesel power . . . and you have the finest heavy-duty grader on the market. Get the full story on this new AD-40 from your Allis-Chalmers dealer now.

ROLL-AWAY is an Allis-Chalmers Trade-mark.

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A Jaeger never races to prime

Pump longer because they pull stronger, at easy speeds

Dewatering 1500' of 8' x 14' deep sewer trench at a river crossing, this 4" Jaeger pump handled 40,000 gph at average speed of only 1200 rpm (10% to 15% lower speed than other pumps), and reprimed quickly, as needed, at 1400 rpm (compared with 1800 to 2000 rpm required to prime ordinary pumps). This is typical performance. Jaeger's larger shells and impellers, double priming action and use of largest engines applicable mean high efficiency, fuel economy, long life — in 1½" to 10" pumps.

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Examine . . . then order the Grating with all 5 superior features . . .
1 Rigid one-piece construction—easy to install.
2 Maximum open area for light and air.
3 Easy to paint—all surfaces accessible.
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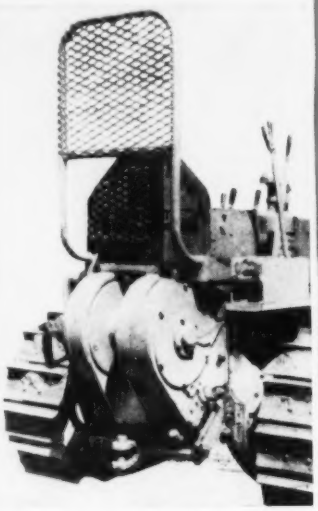
duplication process is the Thermo-Fax duplicator, and this is how it works: an infra-red light source sends rays through a heat-sensitive Thermo-Fax sheet to the black and white original. This may be typing, printing, or pencil. The black type face converts the infra-red rays into heat. This heat acts on the Thermo-Fax sheet to reproduce the original. Papers with printing on both sides may also be handled easily. MAGNA-CREST CORPORATION, 730 FIFTH AVENUE, NEW YORK 15, N. Y.



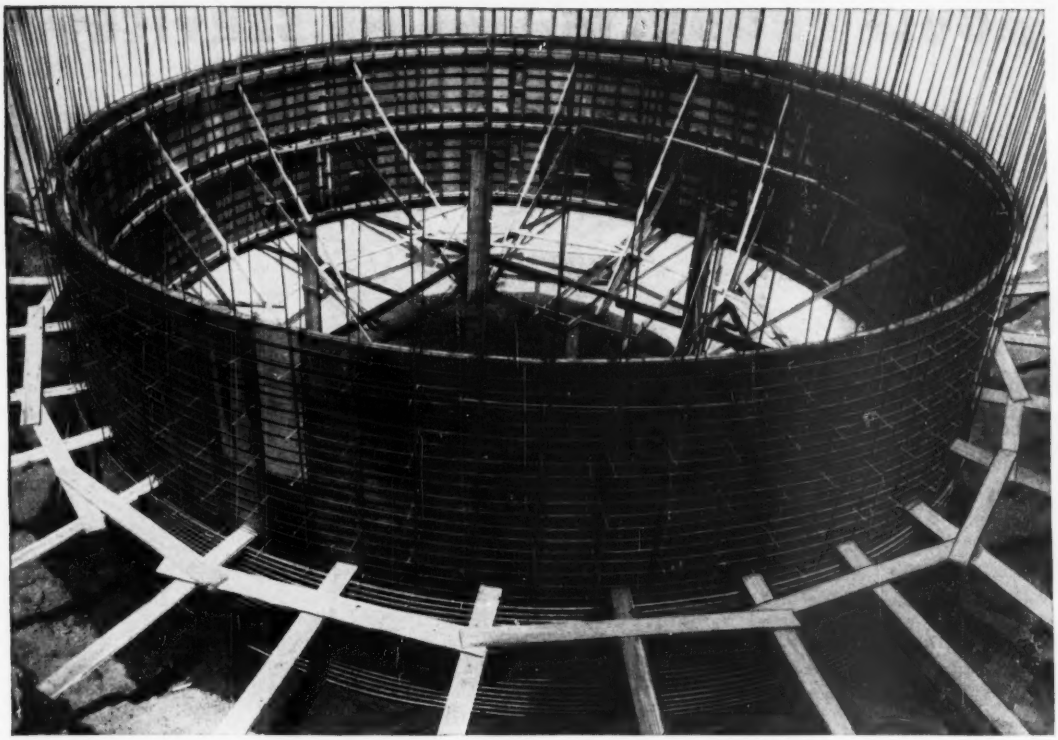
High-speed winch

Here is a lightweight, free-spooling tractor winch with fast line speeds and quick positive brake action—a completely new D4 HySpeed winch. It can be mounted on either seat or fender-tank type Caterpillar D4 tractors. Some of the jobs recommended for this new winch and line are lifting, pulling, crane work, light pile driving, ground skidding of logs, and feeder cat work in logging. HYSTER COMPANY, 2902 N. E. CLACKAMAS STREET, PORTLAND 8, OREGON.

New steam cleaner

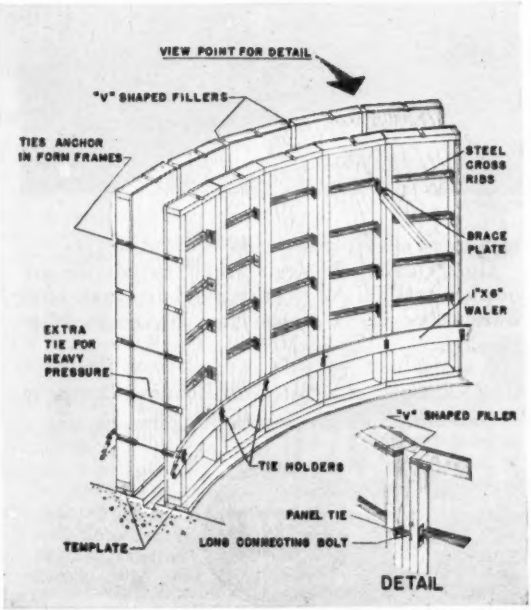
A steam cleaner that works on any steam supply of 60 to 150 lb. pressure to remove grease and dirt from machinery, equipment, floors, etc., is the latest addition to the Hypressure Jenny family. Known as Model F-15 "Fireless" Hy-Stream-Pressure Jenny, the new unit is portable. After connecting to steam and water supply

(*Continued on page 115*)



Setting Up Forms for Sewage Disposal Tank, St. Louis County, G. L. Tarlton Co., G. C.

SYMONS FORMS for CURVED WALLS



Symons Rib panels are used with V-shaped fillers at each joint. Sturdy wedge-bolts secure the three pieces together and also hold the ties in place. Curved walers (see photo) or 1" x 6" flat walers (see perspective) may be used for alignment.

Contractors report savings of $5000.00 on forming costs of Sewage Disposal Plants. Engineers are well pleased with the smooth finished walls.

Symons offers a complete engineering service to solve your toughest forming problems. Send us the plans for your next job and a complete layout and cost sheet will be furnished without charge.

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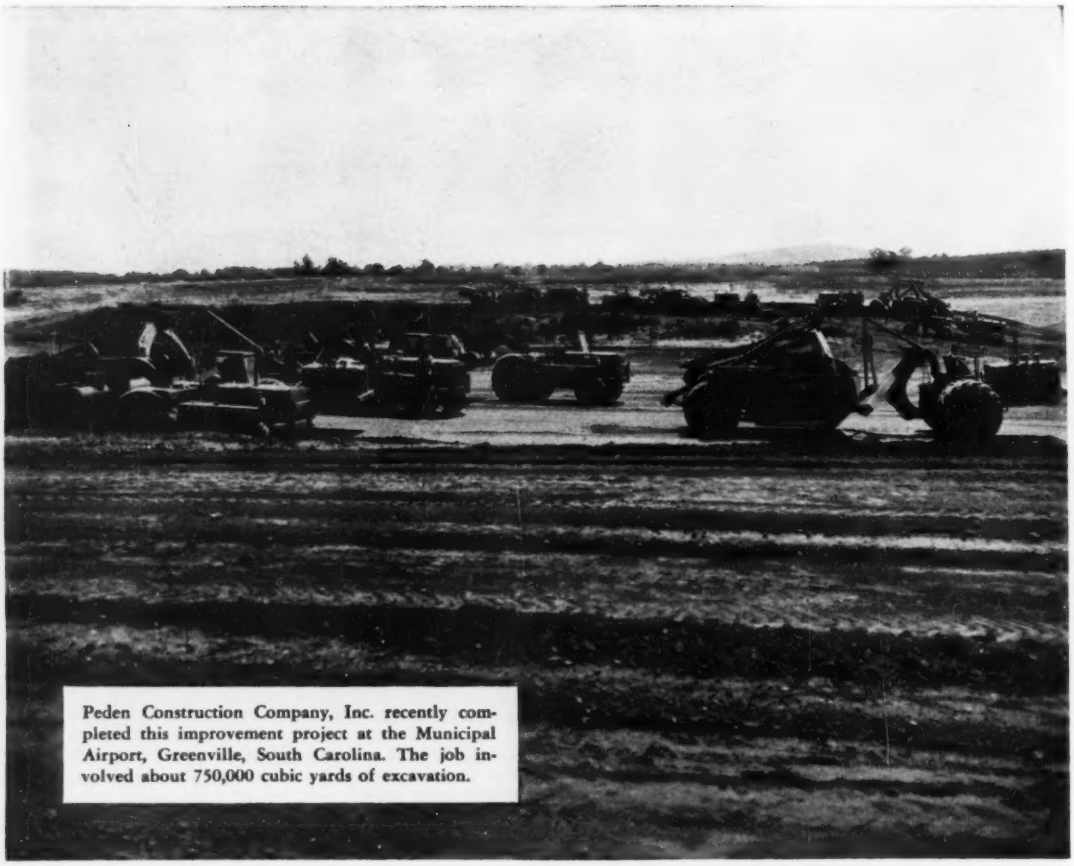

Peden Construction Company, Inc. recently completed this improvement project at the Municipal Airport, Greenville, South Carolina. The job involved about 750,000 cubic yards of excavation.

"SMOOTH, dependable equipment performance is one of the first requirements for a smooth-running job," says H. L. Peden, President of Peden Construction Company, Inc. "And we get that kind of equipment performance with the help of Gulf products and service. Our maintenance costs are exceptionally low, too."

Gulf Quality Products and That Good Gulf Service team up to help many leading contractors do a faster, more profitable job.

Gulf Lubricants provide better protection against wear, and contribute to extra hours of trouble-free operation.

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Gulf Quality Products and Fine Service are quickly available to you through more than 1400 warehouses in 31 states from Maine to New Mexico.

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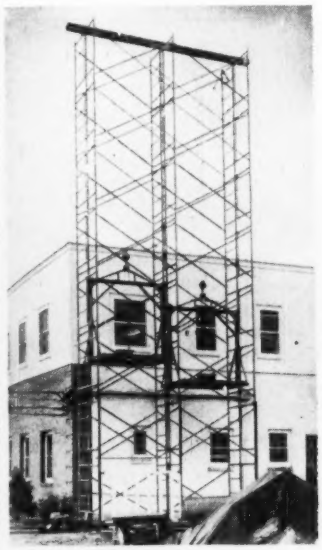
GULF

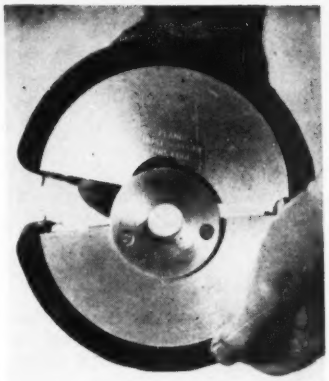
lines, and 110 volt, 60 cycle ac lighting circuit, a flick of the starting switch produces anywhere from 45 to 90 gal. per hour of boiling hot chemical vapor spray, controlled by the operator. Where steam supply pressure exceeds 150 lb., the manufacturer advises use of a steam pressure regulator with this "Fireless" Jenny unit. It includes 25 ft. of vapor hose, a cleaning gun with nozzle control and nozzles, weighing approximately 240 lb. The unit measures 37 in. long by 27 in. wide, by 37 in. high. HYPRESSURE JENNY DIVISION, HOMESTEAD VALVE MANUFACTURING COMPANY, CORAOPOLIS, PENNA.



Double-well hoisting tower

Standard WACO sectional scaffolding is used to erect this new WACO material hoisting tower. Available as either a double-well or single-well unit, it can be erected in approximately 4½ hours by three men, according to the manufacturer. Features include a slow-up brake on the power mechanism to govern platform descending speed, and a safety slack brake which sets automatically in case of failure in the hoisting rig.

Powered by interchangeable gasoline or electric power units with hoisting speds of 100 and 110 fpm, respectively, each tower has a capacity of 1,000 lb. Hoisting mechanism, cage, motor mount and cathead pulleys are all available as a package unit. WILSON-ALBRECHT COMPANY, INC., 3565 WOODDALE AVE., ST. LOUIS PARK, MINN.



Split drum sander

The Cone-Loc drum sander here (left) is a cushion-type split drum which makes it possible to use coated abrasives in low-cost strip form. The two sander halves are shown being placed together; then a locking cone and harbor nut are tightened down. The new backing flange has been incorporated recently as an integral part of the tool, thus assuring a safe, strong, and balanced abrasive drum. The drum is equally effective on flexible shafts or stationary arbors. AMERICAN DIAMOND SAW COMPANY, 519 NORTHWEST PARK AVENUE, PORTLAND 9, OREGON.

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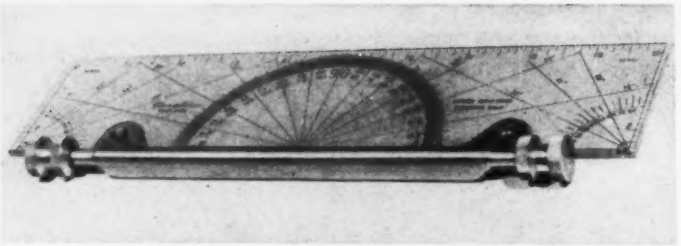

Six drafting tools in one

An improved basic drafting device called the Paraline is small enough to be carried in the pocket and differs from all old models. The metal parts are now incorporated in one sturdy section, eliminating slippage so common in previous models. In one instrument, the Paraline provides a T-square, straight edge, triangle, protractor, a 32nd-in. scale, and parallel rules. Engineers, students and professional men testing the Paraline have rated its performance very highly, particularly for angular line layouts and cross hatching. The pocket drafting machine measures 10¼x3⅞ in., is completely self-contained, and requires no attachments or board clamps. Loomis Industries, Box 442, Berkeley 1, Calif.

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FLEXIBLE CAST-IRON COUPLINGS

- For cement-asbestos pipe
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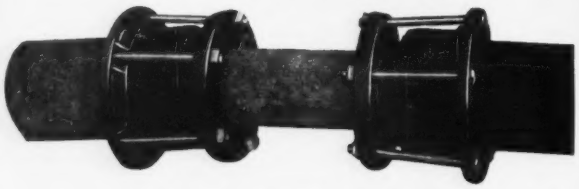

Shown above: 6 in. Trans. (150 Barrel) x 4 in. Trans. (150 Barrel) x 4 in. Trans. (150 M.E.) x 6 in. C.I.

Featuring the "family characteristics" of all Smith-Blair products — durability, serviceability, and ease of installation — these flexible cast-iron couplings are designed to cut costs on many different installations:

CAST-IRON COUPLINGS THAT WILL CONNECT:

- Cast-Iron Pipe of Various Classes
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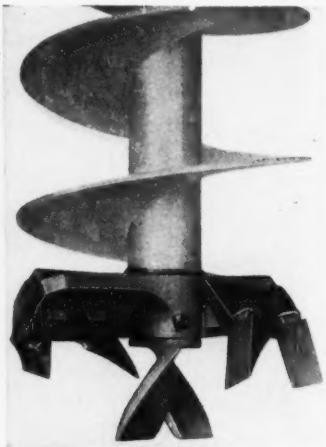
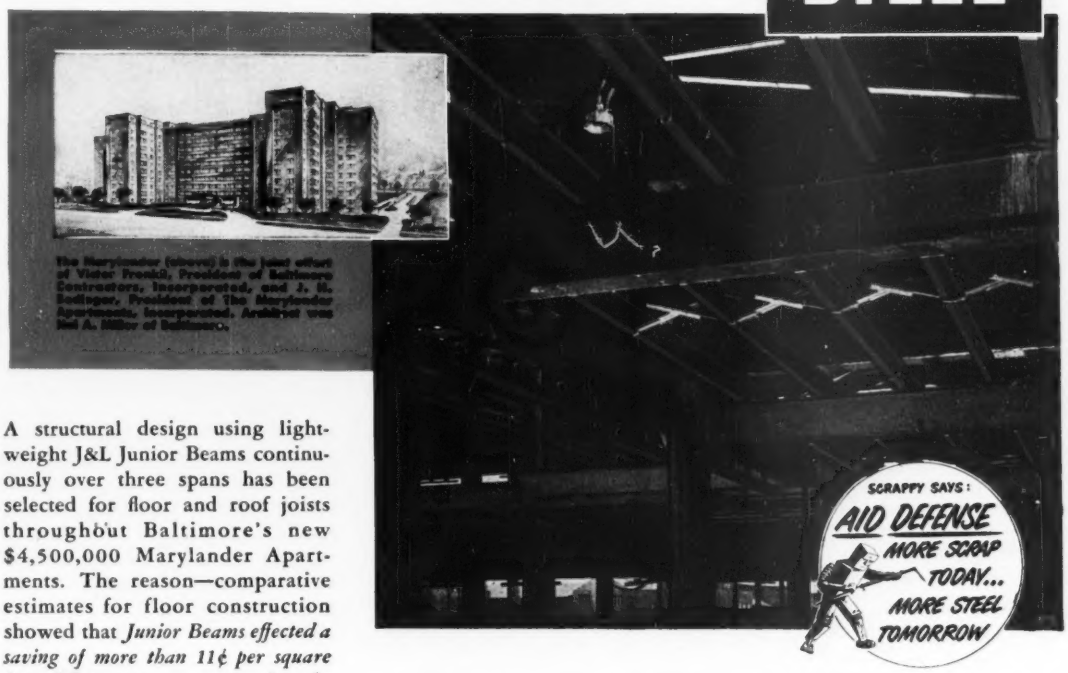


Cutting head for helix type earth drill

Any continuous helix type earth drill or post hole auger can now be fitted with a new Pengo cutting head. It replaces the conventional cutting head by means of direct welding to the bottom of any continuous helix auger. Its main feature is that it makes it possible to bore holes under adverse conditions with machines using the continual helix auger, where formerly only heavy type machines were capable of boring. The cutting teeth are arranged in the same staggered pattern as provided on the manufacturer's regular heavy-duty twin helix earth auger used widely by power and telephone companies. All parts are standard and interchangeable with the standard earth auger of same size, including the shank plates, replaceable points, and the fishtail pilot bits. Available in eight sizes ranging from 10 in. to 24 in. in dia from Petersen Engineering Company, Santa Clara, California.

J & L Junior Beams
SAVE 11¢ *Per Square Foot*
In Steel, Labor and Building Materials
AT BALTIMORE'S MARYLANDER APARTMENTS

J&L STEEL



A structural design using lightweight J&L Junior Beams continuously over three spans has been selected for floor and roof joists throughout Baltimore's new $4,500,000 Marylander Apartments. The reason—comparative estimates for floor construction showed that *Junior Beams effected a saving of more than 11¢ per square foot of floor area as compared to the nearest competitive floor system.*

HERE'S HOW
THE 11¢ PER SQUARE FOOT
SAVING WAS MADE!

1. Lower costs on original material.
2. Lower erection costs due to longer lengths of Junior Beams. Less pieces to handle.
3. Lower costs for outside masonry due to reduced floor thickness—lower over-all height of the building. (The continuity of the Junior Beams effected a saving in floor height due to the greater stiffness afforded by this type of design. Junior Beams are the lightest weight rolled structural section that can be so used.)

(*The substantial saving on interior partitions, plumbing, utilities and miscellaneous items was not estimated.*)

In addition the engineers' estimates comparing steel to reinforced concrete showed that the latter cost 19¢ per square foot of floor more than the steel design using Junior Beams.

In the final design the continuity made possible through the use of Junior Beams allowed a 60% reduction in the number of pieces to be positioned during erection—further cut steel costs through the use of shallower depth Junior Beams. Labor costs were reduced because Junior Beams can be easily positioned and shipped direct from the shop to the job site without time consuming shop fabrication.

Why not take a tip from Engineering Counsel, G. E. Carlstrand who, collaborating with the firm of Candela & Resnick, New York, conceived and developed the idea of using Junior Beams' versatility and adaptability to obtain greater simplicity of framework design? Write today for descriptive literature and engineering data on J&L Junior Beams, the modern lightweight structural.

JONES & LAUGHLIN STEEL CORPORATION

401 Jones & Laughlin Building • Pittsburgh 30, Pennsylvania

IN 1895

Bucyrus-Erie installed the first successful elevator type placer dredge in the United States.

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TODAY, as in the "nineties," Bucyrus-Erie sets the pace in the excavating industry — ashore and afloat. Its placer dredges are typical — matched to the *job* for long-term peak performance.

Your job is the starting point for Bucyrus-Erie engineers. They analyze the character and depth of the deposit, water supply, power and transport facilities, and other conditions peculiar to a specific operation. Balancing these factors with experience unique in the industry, they produce a dredge design geared to high output at lowest possible cost.

But that's not all. Bucyrus-Erie's complete manufacturing facilities provide on-the-spot control of *all* stages of production. That means real assurance of quality in materials and workmanship to match the top-notch *years ahead* design.

35D51

BUCYRUS ERIE SOUTH MILWAUKEE, WISCONSIN

MANUFACTURERS' PUBLICATIONS

Snow Melting Film—"A Winter Wonder" is the title of a new sound film currently being made available to technical and professional societies, trade associations, architectural schools and industrial groups. The nine-minute presentation is the first motion picture ever made on the subject of concealed snow melting systems. It traces their development, telling what they are, how they are installed, and what they do. Pictures taken during 1950's record-breaking Big Snow depict snow melting systems in operation. Arrangements for obtaining the picture may be made through the offices in Atlanta, Boston, Chicago, Houston, New York, Philadelphia, St. Louis, San Francisco and Washington of the A. M. Byers Company.

"Masonite Hardboards"—is the title of a guide for the application and finishing of Masonite hardboards as they are used in building construction and remodeling. All of the more general or common applications are covered. Subjects include bending, fastening, finishing, wainscots, underlayment, exterior siding, and architectural specifications. Masonite Corporation, 111 W. Washington Street, Chicago 2, Illinois.

Pivoted Steel Windows – This describes the features, types, sizes and specifications of the new Steelcraft pivoted steel windows. The 4-page catalog is filled with photos, drawings and full-size cross-section details and technical data. Pictures of spring latch and cam latch hardware are also included. The Steelcraft Manufacturing Co., Rossmoyne, Ohio.

Slag/Concrete Masonry Units—This manual on slag block is devoted entirely to the properties of slag concrete masonry units and describes their chemical properties, physical properties and use in manufacture of masonry units. Tables are included on fire endurance and strength after fire exposure of unfilled hollow walls along with similar walls filled with different materials. Another table makes a comparison of influence of type of aggregate on thermal properties of concrete walls of different thickness and design of units. Also included are more than a dozen pictures of actual installations in churches, universities, auditoriums, etc. The 25 member-companies are listed with their home addresses. National Slag Association, 644 Warner Building, Washington 4, D. C.

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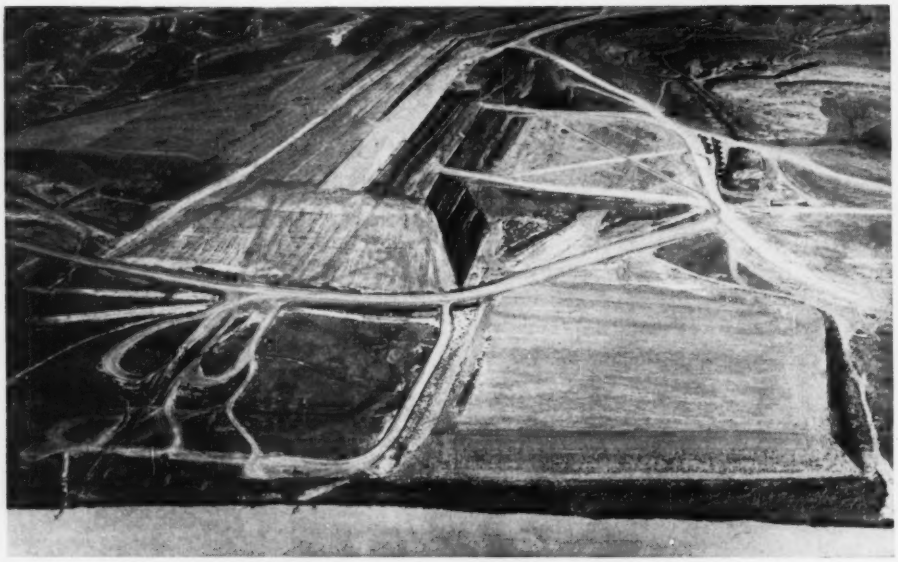


OAHE DAM as seen from the air last month when operations were shut down because of sub-zero weather. Stage one of the work is nearly completed, with over 5.5 million cu yd of earth placed in the main embankment.

Oahe Dam: stage two gets under way

Oahe Dam on the Missouri River is starting its second phase of construction. When completed it will be the largest rolled earth dam in the world and will cost about $234.4 million. The main embankment will involve the total placement of 78 million cu yd of earth and will impound over 23 million acre ft of water in its reservoir (ENR March 15, 1951, p. 32).

Located on the Missouri River in central South Dakota, about six miles northwest of the state capital, Pierre, it is one of the many projects planned as a result of the disastrous 1943 floods in the upper river basin.

The flood was the greatest since 1881 and breached levees from Sioux City, Iowa, to Kansas City, Mo. Six lives were lost in the flood that covered 500,000 acres of land. Damages totaled about $10 million, including nearly $2 million at Omaha and Council Bluffs.

Local interests caused Federal action and two plans for flood control of the Missouri Valley emerged. One plan came from the Corps of Engineers and the other from the Bureau of Reclamation. A compromise of these two plans became known as the "Pick-Sloan" plan (ENR Dec. 20, 1951, p. 104) and included in its vast scope the Oahe Reservoir and Dam project.

The dam site was chosen at a point along the Missouri River about one and one-quarter miles wide.

The dam's purpose will be to capture the flood waters in a multipurpose reservoir during the flood season. The water will be released for purposes of irrigation, hydroelectric power, navigation, low-flow regulation and recreation.

• **Second phase**—The second earthwork project was let this month on a bid of $2.2 million. Winner of the contract was the Western Contracting Corp. of Sioux City, Iowa, and they have nearly two years to complete the job.

Western's biggest single task will be moving 6.2 million cu yd of material from the outlet channel, which will run from the downstream end of the flood control tunnels to the river. The remaining excavation includes 210,000 cu yd of material from a borrow area.

A small amount of impervious material will go into the compacted fill zone of the dam, and an additional 2.4 million cu yd of uncompacted fill will be placed. Other items in the work ahead include 332,000 cu yd of impervious blanket, and 37,000 cu yd of shale blanket to be placed as bank protection for the western shore of the existing Wood Island, which will form a bank for the river when the channel is diverted.

Incidental items in the specifications include water to be used in the compacted fill, boulder stockpiling and the placing of settlement gauges and piezometer tubes.

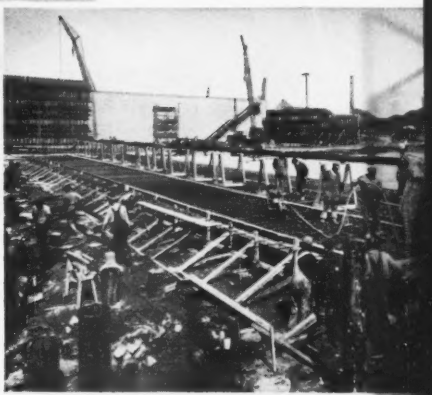
• **First stage**—Earthwork on the Oahe Dam was begun in May 1950, with a target date of March this year. Contractor for stage one was the Guy H. James Construction Co.; Campbell-Collins of Fargo, North Dakota, was the sub-contractor.

Construction facilities either completed or under construction include housing and administration buildings, an access highway and an access railway about 6 miles long.

ORE DOCK

GREAT LAKES STEEL CORPORATION

ZUG ISLAND MICHIGAN



FIFTY Raymond CONTRACTS

FOR GREAT LAKES STEEL CORPORATION

DIVISION OF NATIONAL STEEL CORPORATION

The construction of the Ore Dock was the 50th contract between Great Lakes Steel Corporation and Raymond Concrete Pile Company. The work involved the placing of approximately 36,000 cu. yds. of concrete on 7100 long pipe step-taper piles.

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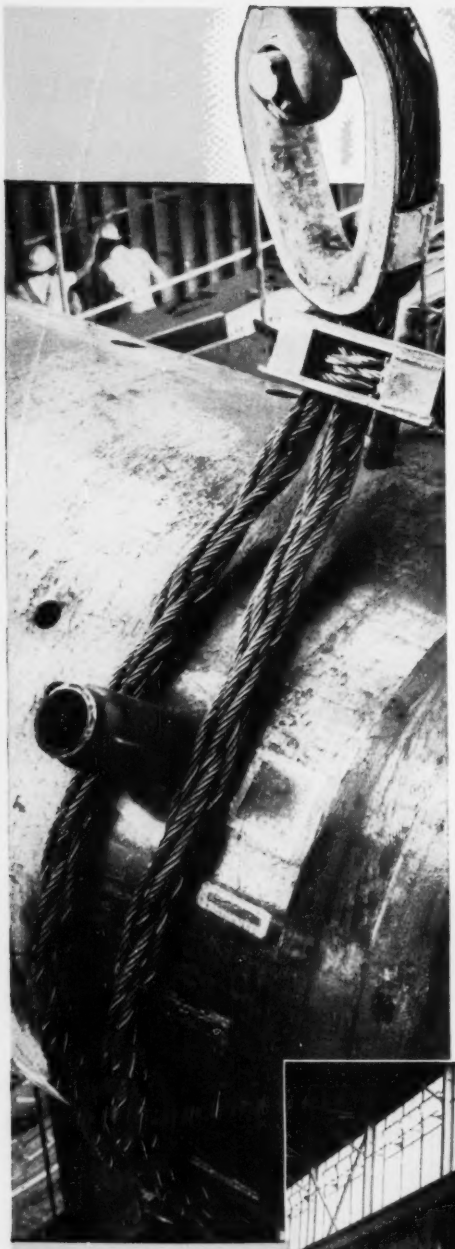

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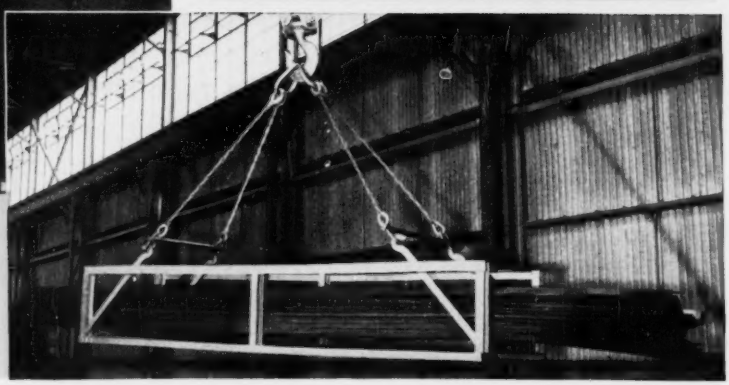

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